Received
January 16, 2024
WV DEP/Div of Air Quality

# Division of Air Quality Permit Application Submittal

Please find attached a permit application for : TEMA North America, LLC, Kearneysville
[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only): 037-00110
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only): R13-3414

- Type of NSR Application (check all that apply):
  - ☑ Construction
  - ☑ Modification
  - ☐ Class I Administrative Update
  - ☐ Class II Administrative Update
  - ☐ Relocation
  - ☐ Temporary
  - ☐ Permit Determination

- Type of 45CSR30 (TITLE V) Application:
  - ☐ Title V Initial
  - ☐ Title V Renewal
  - ☐ Administrative Amendment**
  - ☐ Minor Modification**
  - ☐ Significant Modification**
  - ☐ Off Permit Change

****If the box above is checked, include the Title V revision information as ATTACHMENT S to the combined NSR/Title V application.**

- Payment Type:
  - ☑ Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
  - ☐ Check (Make checks payable to: WVDEP – Division of Air Quality)
    Mail checks to:
    WVDEP – DAQ – Permitting
    Attn: NSR Permitting Secretary
    601 57th Street, SE
    Charleston, WV 25304

**Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.**

- If the permit writer has any questions, please contact (all that apply):
  - ☑ Responsible Official/Authorized Representative
    - Name: Lorenzo Spagna
    - Email: lorenzo.spagna@iwisholding.com
    - Phone Number: 304-707-2290
  - ☐ Company Contact
    - Name: Same as above
    - Email:
    - Phone Number:
  - ☑ Consultant
    - Name: Patrick Ward
    - Email: PEWard@potesta.com
    - Phone Number: (304) 342-1400

# REGULATION 13 MODIFICATION APPLICATION FOR AN XPS BOARD EXTRUSION PROCESS JEFFERSON COUNTY, WEST VIRGINIA

*Prepared for:*

**TeMa North America, LLC**
395 Steeley Way
Kearneysville, West Virginia 25430

*Prepared by:*

**Potesta & Associates, Inc.**
7012 MacCorkle Avenue, sE
Charleston, West Virginia
Phone: (304) 342-1400 Fax: (304) 343-9031
Email: potesta@potesta.com

Project No. 0101-23-0104

January 2024

POTESTA

# TABLE OF CONTENTS



Attachments not applicable to, and not included in, this application: Q, R and S

# SECTION I - III

# GENERAL APPLICANT INFORMATION

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

**DIVISION OF AIR QUALITY**

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

# *APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)*

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

***FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.***

## *Section I. General*

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
TeMa North America, LLC

2. Federal Employer ID No. ***(FEIN):***
82-3157701

3. Name of facility *(if different from above):*
Jefferson County Operations

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
395 Steeley Way
Kearneysville, WV 25430

5B. Facility's present physical address:
395 Steeley Way
Kearneysville, WV 25430

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

➪ If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

➪ If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: TeMa Group

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

➪ If **YES,** please explain: Applicant is leasing the site in the Burr Business Park.

➪ If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): XPS Board Extrusion Process

10. North American Industry Classification System **(NAICS)** code for the facility:
326199

11A. DAQ Plant ID No. (for existing facilities only):
037-00110

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-3414

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

12A.

- ➪ For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- ➪ For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Take Bardane Exit from WV Route 9, turn right onto WV State Route 8, travel approximately 0.3 mile and turn left into the Burr Business Park onto W. Burr Boulevard, turn right onto McGarry Boulevard and then right into the area where the facility will be located on Steeley Way.

| 12.B. New site address (if applicable): | 12C. Nearest city or town: | 12D. County: |
|---|---|---|
| 2 Steeley Way, Kearneysville, WV 25430 | Kearneysville/Bardane | Jefferson |
| 12.E. UTM Northing (KM): 4,360.27638 | 12F. UTM Easting (KM): 252.63229 | 12G. UTM Zone: 18 |

13. Briefly describe the proposed change(s) at the facility:
Addition of an XPS Board Extrusion Process.

| 14A. Provide the date of anticipated installation or change: 11/15/2023<br>➪ If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: | 14B. Date of anticipated Start-Up if a permit is granted:<br>11/15/2023 |
|---|---|

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

## *Section II. Additional attachments and supporting documents.*

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**
Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**
Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

➢ For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

| | | |
|---|---|---|
| ☐ Bulk Liquid Transfer Operations | ☒ Haul Road Emissions | ☐ Quarry |
| ☐ Chemical Processes | ☐ Hot Mix Asphalt Plant | ☐ Solid Materials Sizing, Handling and Storage Facilities |
| ☐ Concrete Batch Plant | ☐ Incinerator | ☐ Storage Tanks |
| ☐ Grey Iron and Steel Foundry | ☐ Indirect Heat Exchanger | |
| ☒ General Emission Unit, specify | | |

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

| | | |
|---|---|---|
| ☐ Absorption Systems | ☒ Baghouse | ☐ Flare |
| ☐ Adsorption Systems | ☐ Condenser | ☐ Mechanical Collector |
| ☐ Afterburner | ☐ Electrostatic Precipitator | ☐ Wet Collecting System |

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

## *Section III. Certification of Information*

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

| | |
|---|---|
| ☐ Authority of Corporation or Other Business Entity | ☐ Authority of Partnership |
| ☐ Authority of Governmental Agency | ☐ Authority of Limited Partnership |

Submit completed and signed **Authority Form** as **Attachment R.**

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

***Certification of Truth, Accuracy, and Completeness***

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

***Compliance Certification***

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ *(Please use blue ink)* DATE: 01/16/'24 *(Please use blue ink)*

| | | |
|---|---|---|
| 35B. Printed name of signee: Lorenzo Spagna | | 35C. Title: CEO |
| 35D. E-mail: Lorenzo.spagna@iwisholding.com | 36E. Phone: (304) 707-2290 | 36F. FAX: Use Email |
| 36A. Printed name of contact person (if different from above): Patrick Ward | | 36B. Title: Engineer |
| 36C. E-mail: peward@potesta.com | 36D. Phone: (304) 342-1400 | 36E. FAX: Use Email |

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☒ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

***Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.***

***FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:***

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

# ATTACHMENT A

# BUSINESS CERTIFICATE

# WEST VIRGINIA
# STATE TAX DEPARTMENT
# BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
**TEMA NORTH AMERICA, LLC**
**1948 WILTSHIRE RD 4**
**KEARNEYSVILLE, WV 25430-2783**

BUSINESS REGISTRATION ACCOUNT NUMBER: **2349-3005**

This certificate is issued on: **11/28/2017**

*This certificate is issued by*
*the West Virginia State Tax Commissioner*
*in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.*

**This certificate is not transferrable and must be displayed at the location for which issued**

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4
L0572168896

# ATTACHMENT B

# AREA MAP


POTESTA
Engineers and Environmental Consultants

7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

**Area Map**

TeMa North America, LLC
395 Steeley Way
Kearneysville, WV 25430
Project No. 0101-23-0104

# ATTACHMENT C

# INSTALLATION AND STARTUP SCHEDULE

# ATTACHMENT C

# INSTALLATION AND STARTUP SCHEDULE

The equipment installation will start after issuance of the permit and is expected to occur around March 2024. Operations are anticipated to start around May 2024.

# ATTACHMENT D

# REGULATORY DISCUSSION

# ATTACHMENT D

# REGULATORY DISCUSSION

The facility is required to comply with the requirements contained in the applicable provisions of (1) 45CSR7, and (2) 45CSR13.

1. 45CSR7, *To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations*, this facility meets the definition of a manufacturing process and is thereby required to meet the standards of the rule. The rule requires the facility to maintain dust control to meet the process rate standards.

2. 45CSR13, *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation*, defines a source that is subject to the rule. This definition includes a source that is subject to a substantive requirement (Section 2.24.a.). Regulation 7 is considered a substantive requirement; therefore, the facility is required to obtain a permit and to operate within the limits of the permit and in accordance with the permit application.

# ATTACHMENT E

# PLOT PLAN

XPS Board Extrusion Line
(X1S - X5S)

Future Silo (X2S, X3DC, X3CD)

Recycling Line
(X9S - X18S)

(X1DC)
XPS
FILTER

(X12S)
with X2DC
XPS
SILO

(X11S)
XPS
GRINDER

New Transformer
Potomac Edison

Dimensional Cutting
(X6S)

GAS

Asphalt

Asphalt

Die Head
Oven

Old Chiller

New
Chiller

Grinders
TRIA
h=3.5 mt

15324

24366

48743

48907

scambiatore linea estrusione

scambiatore linea riciclaggio

1677

792

2547

1315

597

5044

3086

caricamento bobine
film forno

RULLIERA AGGIUNTIVA

3029

3930

4268

1300

4588

4553

6883

19 X 4 m

13 X 14 m

AREA FOR
XPS STOCK
Tot 260 m2

7m x 2,5 m

7m x 3m

7m x 2,5 m

7m x 3m

7m x 2,5 m

7m x 3m

Lamination Line
(X7S, X8S)

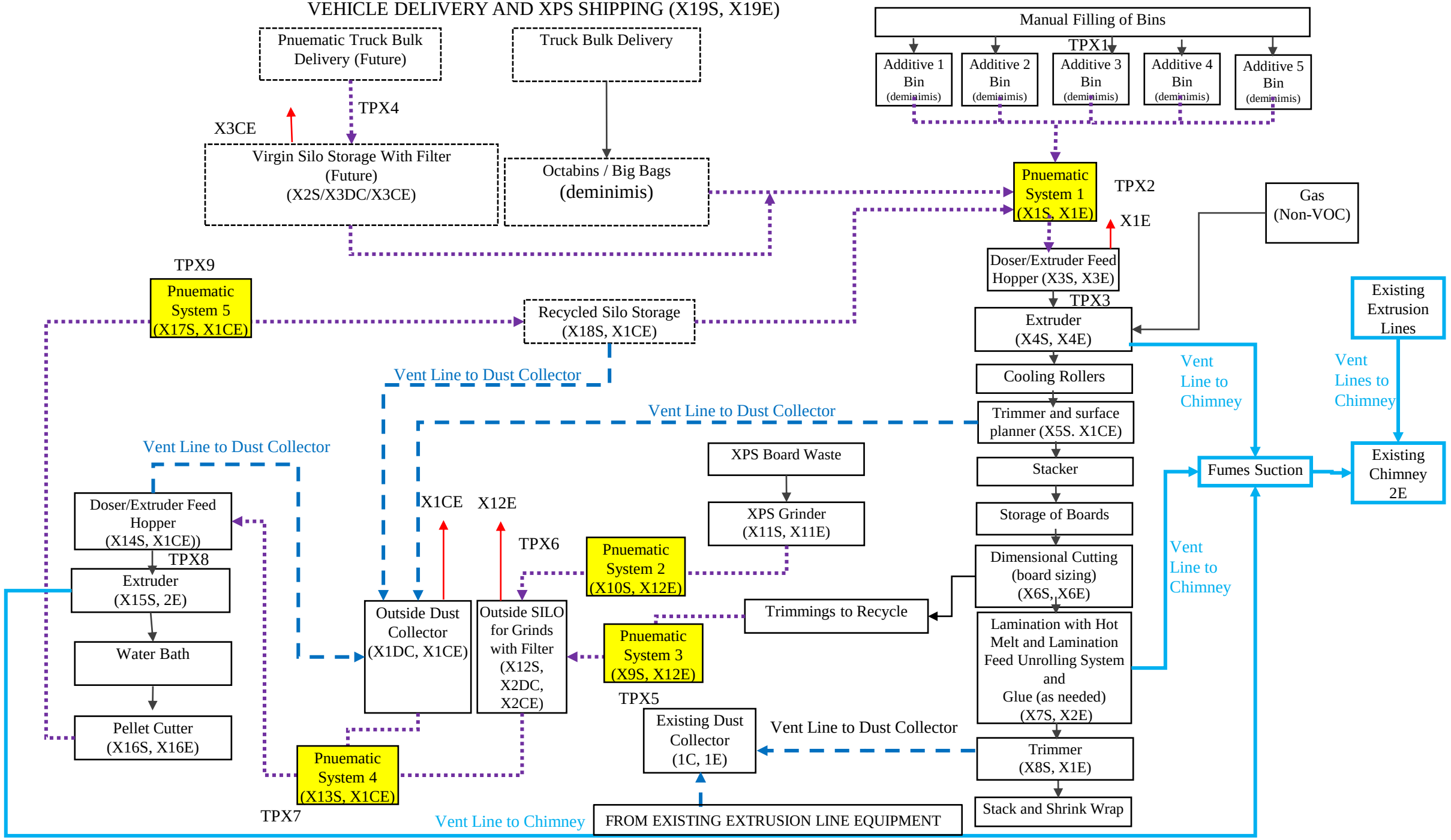
Proposed XPS Board Extrusion

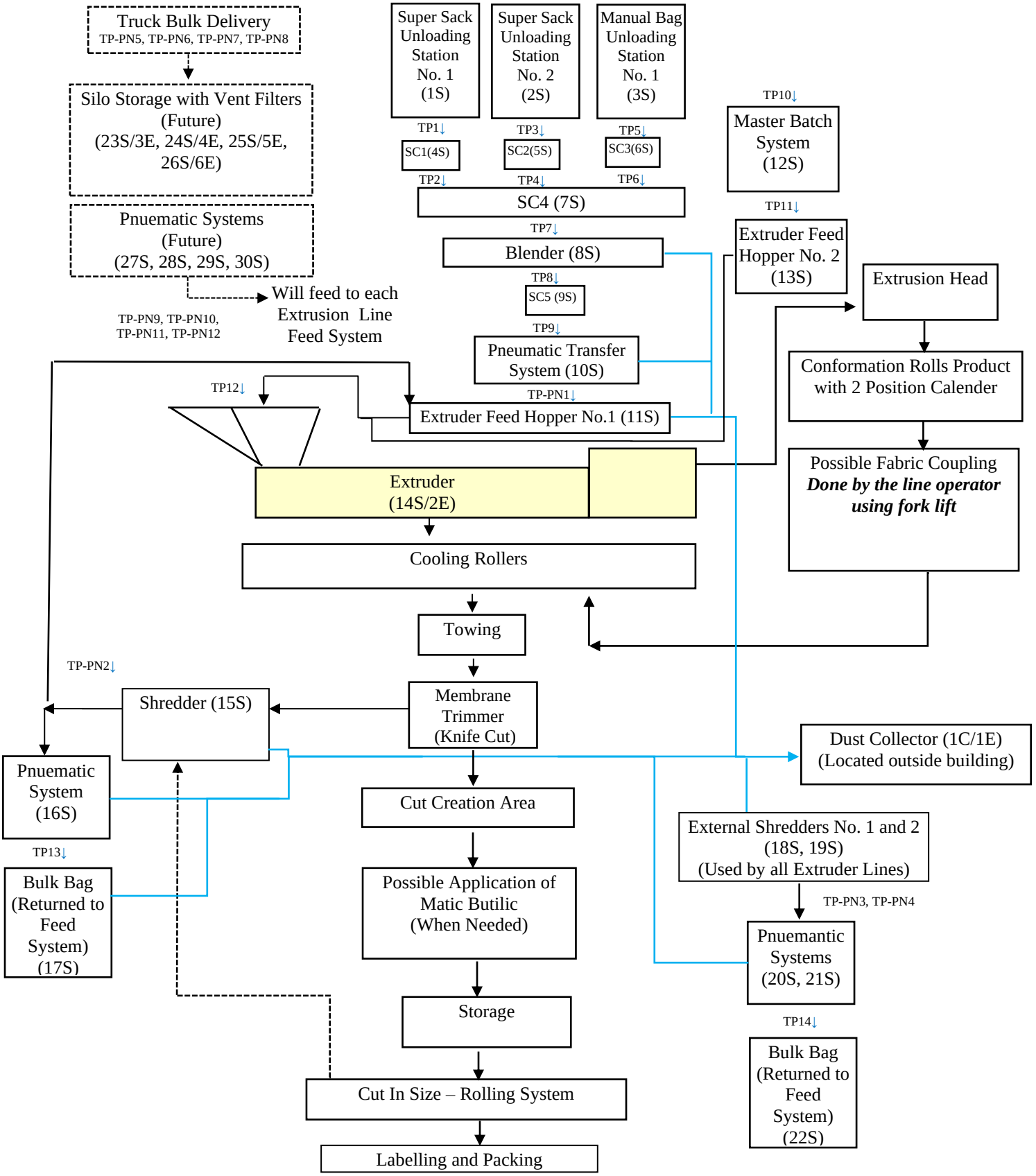
Existing Facility

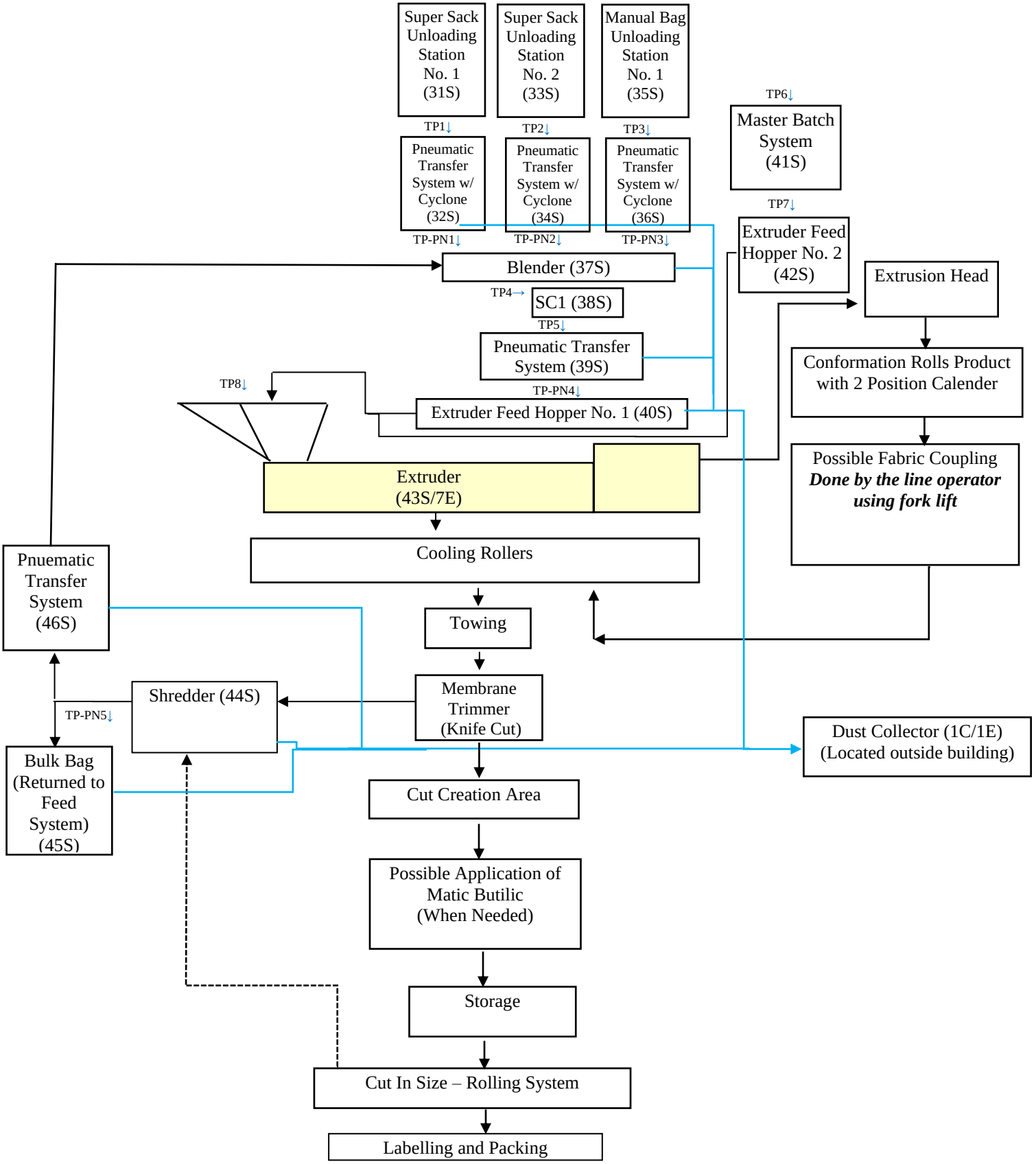
# ATTACHMENT F

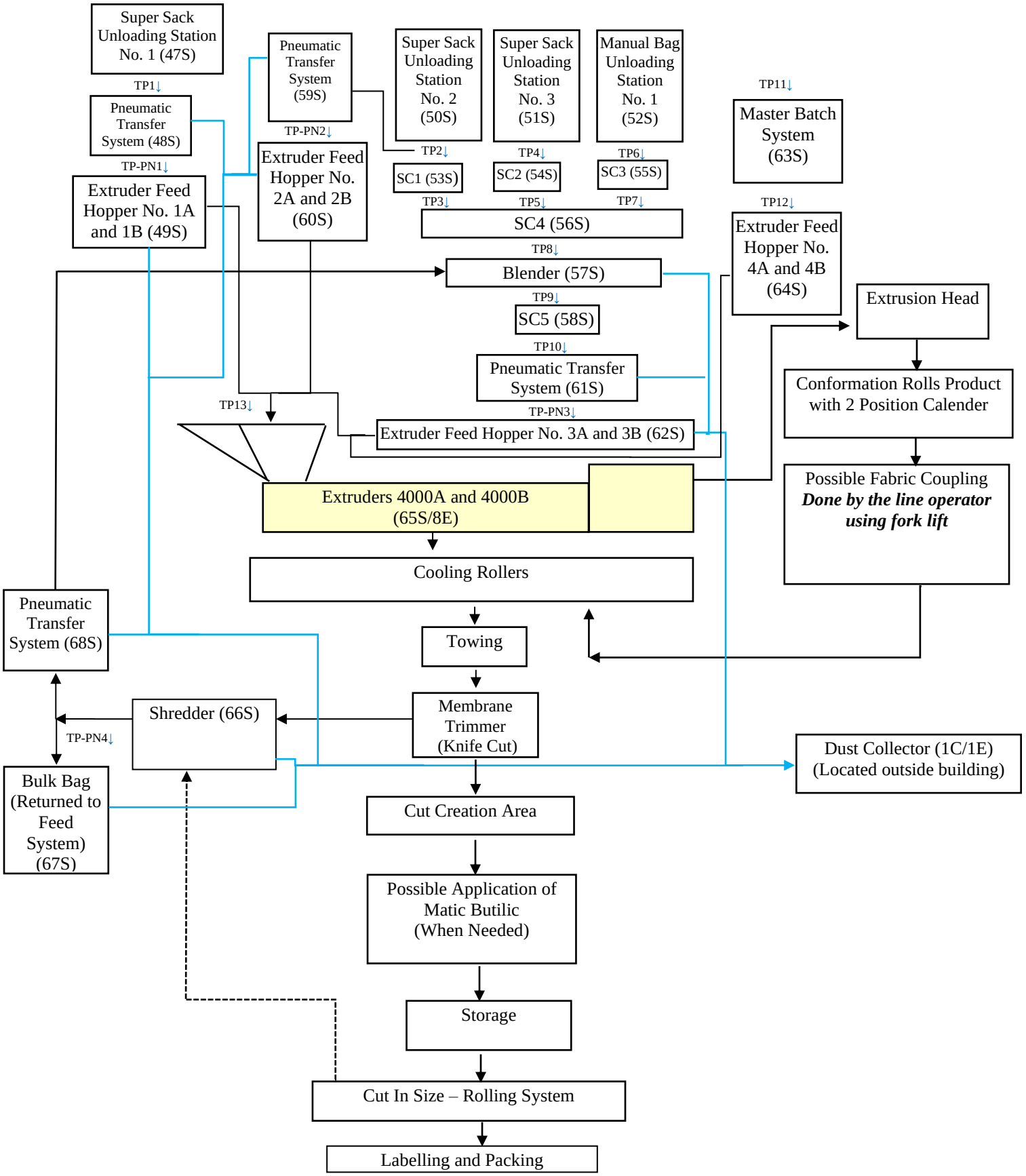
# DETAILED PROCESS FLOW DIAGRAM

# VEHICLE DELIVERY AND XPS SHIPPING (X19S, X19E)




Truck Bulk Delivery
TP-PN5, TP-PN6, TP-PN7, TP-PN8
Silo Storage with Vent Filters (Future)
(23S/3E, 24S/4E, 25S/5E, 26S/6E)
Pnuematic Systems (Future)
(27S, 28S, 29S, 30S)
TP-PN9, TP-PN10, TP-PN11, TP-PN12
Will feed to each Extrusion Line Feed System
Super Sack Unloading Station No. 1 (1S)
Super Sack Unloading Station No. 2 (2S)
Manual Bag Unloading Station No. 1 (3S)
TP1↓
TP3↓
TP5↓
SC1(4S)
SC2(5S)
SC3(6S)
TP2↓
TP4↓
TP6↓
SC4 (7S)
TP7↓
Blender (8S)
TP8↓
SC5 (9S)
TP9↓
Pneumatic Transfer System (10S)
TP10↓
Master Batch System (12S)
TP11↓
Extruder Feed Hopper No. 2 (13S)
Extrusion Head
Conformation Rolls Product with 2 Position Calender
Possible Fabric Coupling
Done by the line operator using fork lift
TP12↓
TP-PN1↓
Extruder Feed Hopper No.1 (11S)
Extruder (14S/2E)
Cooling Rollers
Towing
TP-PN2↓
Shredder (15S)
Membrane Trimmer (Knife Cut)
Dust Collector (1C/1E)
(Located outside building)
Pnuematic System (16S)
Cut Creation Area
External Shredders No. 1 and 2
(18S, 19S)
(Used by all Extruder Lines)
TP13↓
Bulk Bag (Returned to Feed System) (17S)
Possible Application of Matic Butilic (When Needed)
TP-PN3, TP-PN4
Pnuemantic Systems (20S, 21S)
Storage
TP14↓
Bulk Bag (Returned to Feed System) (22S)
Cut In Size – Rolling System
Labelling and Packing


Super Sack Unloading Station No. 1 (31S)
Super Sack Unloading Station No. 2 (33S)
Manual Bag Unloading Station No. 1 (35S)
TP1↓
TP2↓
TP3↓
Pneumatic Transfer System w/ Cyclone (32S)
Pneumatic Transfer System w/ Cyclone (34S)
Pneumatic Transfer System w/ Cyclone (36S)
TP-PN1↓
TP-PN2↓
TP-PN3↓
TP6↓
Master Batch System (41S)
TP7↓
Extruder Feed Hopper No. 2 (42S)
Blender (37S)
TP4→
SC1 (38S)
TP5↓
Pneumatic Transfer System (39S)
TP8↓
TP-PN4↓
Extruder Feed Hopper No. 1 (40S)
Extrusion Head
Conformation Rolls Product with 2 Position Calender
Possible Fabric Coupling
Done by the line operator using fork lift
Extruder (43S/7E)
Cooling Rollers
Pnuematic Transfer System (46S)
Towing
Shredder (44S)
Membrane Trimmer (Knife Cut)
TP-PN5↓
Dust Collector (1C/1E) (Located outside building)
Bulk Bag (Returned to Feed System) (45S)
Cut Creation Area
Possible Application of Matic Butilic (When Needed)
Storage
Cut In Size – Rolling System
Labelling and Packing


Super Sack Unloading Station No. 1 (47S)
TP1↓
Pneumatic Transfer System (48S)
TP-PN1↓
Extruder Feed Hopper No. 1A and 1B (49S)
Pneumatic Transfer System (59S)
TP-PN2↓
Extruder Feed Hopper No. 2A and 2B (60S)
Super Sack Unloading Station No. 2 (50S)
TP2↓
SC1 (53S)
Super Sack Unloading Station No. 3 (51S)
TP4↓
SC2 (54S)
Manual Bag Unloading Station No. 1 (52S)
TP6↓
SC3 (55S)
TP3↓
TP5↓
TP7↓
SC4 (56S)
TP11↓
Master Batch System (63S)
TP12↓
Extruder Feed Hopper No. 4A and 4B (64S)
TP8↓
Blender (57S)
TP9↓
SC5 (58S)
TP10↓
Pneumatic Transfer System (61S)
TP13↓
TP-PN3↓
Extruder Feed Hopper No. 3A and 3B (62S)
Extrusion Head
Conformation Rolls Product with 2 Position Calender
Possible Fabric Coupling
Done by the line operator using fork lift
Extruders 4000A and 4000B (65S/8E)
Cooling Rollers
Towing
Membrane Trimmer (Knife Cut)
Shredder (66S)
TP-PN4↓
Bulk Bag (Returned to Feed System) (67S)
Pneumatic Transfer System (68S)
Dust Collector (1C/1E) (Located outside building)
Cut Creation Area
Possible Application of Matic Butilic (When Needed)
Storage
Cut In Size – Rolling System
Labelling and Packing

# ATTACHMENT G

# PROCESS DESCRIPTION

# ATTACHMENT G

# PROCESS DESCRIPTION

TeMa North America LLC is proposing to install an XPS Board Extrusion and Lamination System at their existing facility in the Burr Business Park in Jefferson County, West Virginia. This process will utilize polystyrene as the feed plastic instead of the existing operations which use polypropylene and polyethylene, including high density polyethylene. There is expansion gas used in the process as XPS Boards are foam boards. The expansion gas is HFC 152a which is a non-VOC material. The product also requires the addition of other additives to adjust the properties of the board. The main portions of the proposed addition are the XPS Board Extrusion Process, the Laminator to laminate by heating the XPS Board or by gluing the laminate to the XPS Board, and an XPS Recycle Line that will recycle trimmings from the process. Sample Safety Data Sheets for the materials to be used on the lines are provided in Attachment H. The supplier could change for materials, but the materials themselves will not change. These lines will be in addition to the existing three extrusion lines identified as Line 2000, Line 3000, and Line 4000.

The general arrangement of the proposed addition is shown on the process flow diagram in Attachment F. Material will be delivered in bulk sacks (super sacks) via trucks or tank trucks which will be unloaded by forklift and placed in storage or blown into a silo. Initially bulk sacks will be used. A forklift will be used to move the super sacks to the unloading stations and then the contents conveyed pneumatically to the Doser/Extruder Feed Hopper where additives from the five (5) additive bins are also delivered into the process pneumatically. The material is then fed to the extruder, to cooling rollers, then to the Trimmer and Surface Planer for sizing. These boards are then stacked. The stacked boards will then go to the Dimensional Cutter to be sized to the final size of the board to be laminated. The XPS boards can then be laminated with any type of material that is needed for the outsides of the board. Two forms of lamination will be used. The XPS Board can be heated to allow the surface to become tacky which will allow the laminate to stick to the board or a glue will be used that is heated and delivered to the lamination machine. The glue would then hold the laminate surface to the board. After lamination is complete, then the boards/laminate are trimmed, stacked, and wrapped as the final product.

Trimmings from the board production will be recycled in the XPS Recycle Line. The smaller trimmings and planning scraps will be sent to a dust collector and then recycled back to the system pneumatically. The larger scraps will be sent to the XPS Grinder then pneumatically transferred to a silo. Both lines will be combined in the Doser/Extruder Feed Hopper on the recycle line and then feed to the Extruder, pass through a water bath for cooling, and then to a pellet cutter. The pellets will be fed to a Recycled Silo Storage and then will be fed back into the system at the Doser/Extruder Feed Hopper for the XPS Board Extrusion Line.

# ATTACHMENT H

# SAFETY DATA SHEETS (SDS)

# Safety Data Sheet
# MB PS POL 55 EV
## 22/6/2022, version 2
## 22/6/2022

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Mixture identification:
Trade name: MB PS POL 55 EV

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Flame retardant masterbatch
Uses advised against:
Consumer use

1.3. Details of the supplier of the safety data sheet
Company:
GREENCHEMICALS SRL
Via Lavoratori Autobianchi, 1
20832 Desio (MB)
Tel: +39 0362 1547305
FAX: +39 039 89 42 754
Competent person responsible for the safety data sheet:
info@greenchemicals.green

1.4. Emergency telephone number
Greenchemicals Srl, tel. +39 347 4313255 (mon-fri 9-19)

Telephone numbers of European Poison Centres:
Austria, tel. +43 1 406 43 43 (Vergiftungsinformationszentrale (VIZ),
Belgium, Luxembourg tel. + 32 (0)70 245 245 (Centre Antipoisons)
Bulgaria, tel.+359 2 9154 409 (National Toxicology Center, Hospital "N.I.Pirogov")
Croatia, tel. +385 1 2348 342 (Poison Control Centre)
Czech Republic, tel. +420 224 919 293, +420 224 915 402 (Toxikologické informacní stredisko)
Cyprus, tel. 1401, (Cyprus Poison Center)
Denmark, tel. +45 82 12 12 12 (Poison Control Hotline)
Estonia, nat. tel. 16662, int. tel.: +372 626 93 90 (Poison information Centre)
Finland tel. 0800 147 111 or +358 (0)9 471 977 (Poison Information Centre)
France, tel. + 33 (0)1 45 42 59 59 (numéro ORFILA (INRS), national number)
Germany
Berlin, tel. +49 (0)30 19240 (Giftnotruf der Charité – Universitätsmedizin Berlin)
Göttingen, tel. +49 (0)551 19 240 (GIZ-Nord)
Bonn, tel. +49 (0)228 19240 (Informationszentrale gegen Vergiftungen)
Homburg, tel. +49 (0)6841 19240 (Informations- und Beratungszentrum für Vergiftungsfälle)
Erfurt, tel. +49 (0)361 730 730 (Giftnotruf Erfurt)

Mainz, tel. +49 (0)6131 19240 (notruf), 06131-23 24 66 (Infoline) (Giftinformationszentrum)
Freiburg, tel. +49 (0)761 19240 (Vergiftungs-Informations-Zentrale)
München, tel. +49 (0)89 19240 (Giftnotruf München)

Greece, tel. +30 210 779 3777 (Poison Information Centre)
Hungary, tel. +36 80 20 11 99 (Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service))
Iceland, tel. +354 543 2222 (Landspitali, The National University Hospital of Iceland):
Ireland, tel. +353 (0)1 8092566 or +353 (0)1 8379964 (National Poison Information Center)
Latvia, tel. +371 67042473 (Valsts Toksikologijas centra Saindešanas un zalu informacijas centrs)
Liechtenstein, emergency tel. 145 (for toxic poisoning)
Lithuania, tel. +370 5 236 20 52 or +370 687 53378 (Neatideliotina informacija apsinuodijus, National Emergency Number)
Malta, tel. +356 2545 0000 (Mater Dey Hospital)
Netherlands, tel. +31 (0)30 274 8888 (Nationaal Vergiftigingen Informatie Centrum (NVIC))
Norway, tel. +47 22 59 13 00 (Norwegian Poison information Centre)
Poland
Warschaw, tel. +48 607 218 174 (Osrodek Kontroli Zatruc)
Gdansk, tel. + 48 (0)58 682 04 04 (Pomorskie CentrumToksykologii)
Poznan, tel. 48 (0)61 847 69 46 (Osrodek Informacji Toksykologicznej Oddzial Toksykologii)
Krakow, tel. 48 (0)12 411 99 99 (Pracownia Informacji Toksykologicznej i Analiz)
Portugal, tel. +351 808 250 143 (Centro de Informação Antivenenos)
Romania, tel. +40 (0)21 318 3606 (centru de informare toxicologica)
Slovenia, tel. (01) 522 52 83 (Centro Per Tossicologia Clinica E Farmacologia)
Slovakia, tel. +421 2 5477 4166 (National Toxicological Information Center)
Spain, tel. + 34 91 562 04 20 (Servicio de Información Toxicológica)
Sweden, emergency tel. 112 or tel. +46 (0)10 456 6700 (Swedish Poison Information Centre)

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP)

Warning, Skin Sens. 1B, May cause an allergic skin reaction.

Aquatic Chronic 3, Harmful to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:
No other hazards

2.2. Label elements
The material in the form in which it is placed on the market (polymeric granules) does not represent a hazard to human health (in case of inhalation or contact with the skin) and to the aquatic environment because the components are enclosed or embedded in a polymeric base, therefore does not require labeling.
Contains:

dicumene
bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite
Special provisions according to Annex XVII of REACH and subsequent amendments:
None

2.3. Other hazards
No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%
Other Hazards:
No other hazards known

## SECTION 3: Composition/information on ingredients

3.1. Substances
3.1. Substances
N.A.

3.2. Mixtures
Hazardous components within the meaning of the CLP regulation and related classification:

| Qty | Name | Ident. Number | Classification |
|---|---|---|---|
| >= 7% - < 10% | dicumene | CAS: 1889-67-4<br>EC: 217-568-2<br>REACH No.: 01-21199718 24-27-xxxx | 3.4.2/1B Skin Sens. 1B H317 |
| >= 1% - < 3% | bis (2,4-di-t-butyl phenyl) pentaerythritol diphosphite | CAS: 26741-53-7<br>EC: 247-952-5<br>REACH No.: 01-21199770 73-34-XXXX | 4.1/C1 Aquatic Chronic 1 H410 M=1. |

## SECTION 4: First aid measures

4.1. Description of first aid measures
In case of skin contact:
Wash the contaminated clothing before reusing.
Get medical attention if any discomfort continues.
In case of eyes contact:
In case of eye contact, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and it it is easy to do.
In case of Ingestion:
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.
If the victim is conscious, rinse the mouth with water, without swallowing.
Do not give anything to drink if the victim is unconscious.
In case of Inhalation:
Remove casualty to fresh air and keep warm and at rest.
In case of respiratory arrest, administer artificial respiration.

If the victim experiences difficulty breathing or discomfort, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed
No specific symptoms known

4.3. Indication of any immediate medical attention and special treatment needed
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Treatment:
Treat symptomatically.

## SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Water.
CO2 or Dry chemical fire extinguisher.
Extinguishing media which must not be used for safety reasons:
Do not use a high pressure jet of water as it may scatter or spread the fire.

5.2. Special hazards arising from the substance or mixture
Do not inhale gases from explosion and combustion.
Burning produces noxious and toxic fumes.
Slip hazard due to leakage/spillage product.
Hazardous combustion products:
carbon dioxide
Carbon monoxide
Bromine, hydrobromic acid
Phosphorus oxides

5.3. Advice for firefighters
Evacuate unauthorized personnel to a safe area
Use fire fighter's clothing conforming to European standard EN469.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Cool containers exposed to flames with water, even after the flames have gone out.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate the area.
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment:
Keep in a dry, cool and well-ventilated place
Prevent penetration into the soil / subsoil. Prevent discards into the surface water or into the sewage system. Collect contaminated washing water and treat it as waste to manage according to local regulations.
For cleaning up:
Ensure adequate ventilation.
Pick up and dispose of with suitable appliance
Ventilate area and wash after material pick up is complete
Collect the washing water and dispose of it
Other information:
See section 7 for information on safe use
See section 8 for DPI
Refer to section 13 for disposal
Collect immediately, place in a duly marked container and dispose of in compliance with local waste disposal regulations.
If necessary pre-humidify to avoid dust dispersion.

6.4. Reference to other sections

See also section 8 and 13

## SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handle with care to avoid dust formation.
Avoid handling in a manner likely to cause dust formation
Risk of slipping due to leakage/spills of the product.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Do not eat, drink or smoke when using this product.
Wash hands after use
Contamined clothing should be changed before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat sources, sparks and open flames
Store closed containers in a dry and well-ventilated area.
Keep the product in containers clearly labeled.
Keep containers away from incompatible materials, see section 10.
Keep away from food, drink and feed.
Incompatible materials:
See subsection 10.5
Instructions as regards storage premises:
Cool and adequately ventilated.

7.3. Specific end use(s)
None in particular

## SECTION 8: Exposure controls/personal protection

8.1. Control parameters
According to the limit value of harmful dusts (expected 10 mg / m3 total dust, 5 mg / m3 respirable dust expected).
Avoid dust dispersion.
No occupational exposure limit available
DNEL Exposure Limit Values
DICUMENE - CAS: 1889-67-4
Worker Professional: 0.353 mg/m3 - Consumer: 0.087 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Worker Professional: 1 mg/kg bw/day - Consumer: 0.5 mg/kg bw/day - Exposure: Human Dermal - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Consumer: 0.05 mg/kg bw/day - Exposure: Human Oral - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
Worker Professional: 2.75 mg/m3 - Consumer: 0.68 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Worker Professional: 0.78 mg/kg bw/day - Consumer: 0.39 mg/kg bw/day - Exposure: Human Dermal - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Consumer: 0.39 mg/kg bw/day - Exposure: Human Oral - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
PNEC Exposure Limit Values
DICUMENE - CAS: 1889-67-4
Target: Fresh Water - Value: 0.08 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Marine water - Value: 0.08 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Freshwater sediments - Value: 249.6 mg/kg sediment dw - Type of hazard: Hazard for Aquatic Organisms
Target: Marine water sediments - Value: 249.6 mg/kg sediment dw - Type of hazard: Hazard for Aquatic Organisms
Target: STP - Value: 10 mg/l - Type of hazard: Hazard for Aquatic Organisms
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
Target: Fresh Water - Value: 0.002 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Marine water - Value: 0.0002 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: STP - Value: 42 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Soil - Value: 1 mg/kg dw soil - Type of hazard: Hazard for terrestrial organisms
Target: Secondary poisoning - Type of hazard: Hazard for predators - Notes: no potential for bioaccumulation

8.2. Exposure controls

Eye protection:

Use safety or protective glasses. European norm to consult: EN 166:2004.

Protection for skin:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit(according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

Protection for hands:

PVC, neoprene or rubber gloves (standard: EN 374)
The choice of a suitable glove depends on the working conditions and whether the product is present or in combination with other substances.
The penetration time depends on the characteristics of the brand of gloves used, consult your supplier.
Gloves should be replaced immediately if signs of deterioration are observed.
The applicable European standard is EN 374.

Respiratory protection:

In case of insufficient ventilation, suitable respiratory equipment must be used.

Thermal Hazards:

No data available

Environmental exposure controls:

Avoid release to the environment
Ensure adequate ventilation, localized suction to reduce dust accumulation.

Appropriate engineering controls:

Minimize dust generation in the air
Provide adequate local and general ventilation
Install an eyewash station and a safety shower.
Work according to industrial practice standards of the chemical industry.

It is recommended to consider the ACGIH Occupational Exposure Limit Values for inert dusts otherwise unclassified (PNOC breathable fraction: 3 mg / mc; PNOC inhalable fraction: 10 mg / mc) in the risk assessment process. If these limits are exceeded, it is advisable to use a P type filter whose class (1, 2 or 3) should be chosen based on the outcome of the risk assessment.

## SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Method: | Notes |
|---|---|---|---|
| Physical state: | Solid | -- | -- |
| Colour: | white-yellowish | -- | -- |
| Odour: | odorless | -- | -- |
| Melting point/freezing point: | N.A. | -- | -- |
| Boiling point or initial boiling point and boiling | N.A. | -- | the product is a solid |

| | | | |
|---|---|---|---|
| range: | | | |
| Flammability: | Non-flammable | -- | -- |
| Lower and upper explosion limit: | N.A. | -- | -- |
| Flash point: | N.A. | -- | the product is a solid |
| Auto-ignition temperature: | N.A. | -- | -- |
| Decomposition temperature: | N.A. | -- | -- |
| pH: | N.A. | -- | the product is a masterbatch |
| Kinematic viscosity: | N.A. | -- | -- |
| Solubility in water: | insoluble | -- | -- |
| Solubility in oil: | N.A. | -- | -- |
| Partition coefficient n-octanol/water (log value): | N.A. | -- | the product is a mixture in the form of masterbatch |
| Vapour pressure: | N.A. | -- | -- |
| Density and/or relative density: | 1.2-1.4 | -- | -- |
| Relative vapour density: | N.A. | -- | -- |

Particle characteristics:

| | | | |
|---|---|---|---|
| Particle size: | N.A. | -- | -- |

9.2. Other information

| **Properties** | **Value** | **Method:** | **Notes** |
|---|---|---|---|
| Explosive properties: | non explosive | -- | -- |
| Oxidizing properties: | non oxidazing | -- | -- |

## SECTION 10: Stability and reactivity

10.1. Reactivity

This product will not polymerize. No unusual fire or explosion hazards are known for this product

10.2. Chemical stability

No decomposition will occur if used and stored under recommended conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions known.

10.4. Conditions to avoid

Avoid moisture and heat, flames, static electricity and other ignition sources.

10.5. Incompatible materials

Oxidizing or reducing agents. Strong acids or bases.

10.6. Hazardous decomposition products

Fire or high temperatures cause: Toxic gases / vapors / fumes of bromine, bromide of hydrogen (hydrobromic acid),Carbon dioxide (CO2), Carbon monoxide (CO). Phosphorus oxides and COx carbon oxides.

## SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

MB PS POL 55 EV

a) acute toxicity
Not classified

b) skin corrosion/irritation
Not classified

c) serious eye damage/irritation
Not classified

d) respiratory or skin sensitisation
The product is classified: Skin Sens. 1B H317

e) germ cell mutagenicity
Not classified

f) carcinogenicity
Not classified

g) reproductive toxicity
Not classified

h) STOT-single exposure
Not classified

i) STOT-repeated exposure
Not classified

j) aspiration hazard
Not classified

Toxicological information of the main substances found in the product:

DICUMENE - CAS: 1889-67-4

a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg bw
Test: LD50 - Route: Dermal - Species: Rabbit > 2000 mg/kg bw

b) skin corrosion/irritation:
Route: Dermal - Species: Rabbit Based on available data, the classification criteria are not met

c) serious eye damage/irritation:
Route: Skin - Species: Rabbit Based on available data, the classification criteria are not met

d) respiratory or skin sensitisation:
Test: Skin Sensitization - Route: Dermal - Species: Mouse - Notes: OECD 429

e) germ cell mutagenicity:
Test: Ames Test (OECD 471) Based on available data, the classification criteria are not met

f) carcinogenicity:

g) reproductive toxicity:
Based on available data, the classification criteria are not met
h) STOT-single exposure:
j) aspiration hazard:
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 5000 mg/kg bw
Test: LC50 - Route: Skin - Species: Rabbit > 2000 mg/kg bw
Test: LC50 - Route: Inhalation - Species: Rat > 2 mg/l - Duration: 1h
b) skin corrosion/irritation:
Route: Dermal - Species: Rabbit No adverse effects observed - Duration: 4h
c) serious eye damage/irritation:
Route: Eye - Species: Rabbit No adverse effects observed

11.2. Information on other hazards
Endocrine disrupting properties:
No endocrine disruptor substances present in concentration >= 0.1%

## SECTION 12: Ecological information

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
MB PS POL 55 EV
Toxicity - Endpoint: Not available
DICUMENE - CAS: 1889-67-4
a) Aquatic acute toxicity - Endpoint: LC50 - Species: Brachydanio rerio > 1000 mg/l - Duration h: 96
c) Short-term toxicity to aquatic invertebrates - Endpoint: EC50 - Species: Daphnia Magna > 1000 mg/l - Duration h: 48
e) Algae toxicity - Endpoint: EC50 crescita - Species: Pseudokirchnerella > 1000 mg/l - Duration h: 72
g) Toxicity for microorganisms - Endpoint: NOEC - Species: Activated sludge > 1000 mg/l - Duration h: 3
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
a) Aquatic acute toxicity - Endpoint: LC50 - Species: Danio rerio = 70.7 mg/l - Duration h: 96 - Notes: OECD 203
e) Algae toxicity - Endpoint: EC50 - Species: Desmodesmus subspicatus = 97 mg/l - Duration h: 96 - Notes: OECD 201
e) Algae toxicity - Endpoint: EC10 - Species: Desmodesmus subspicantus = 15.4 mg/l - Duration h: 72 - Notes: OECD 201
d) Long-term toxicity to aquatic invertebrates - Endpoint: NOEC - Species: Daphnia Magna = 0.1 mg/l - Duration h: 504 - Notes: OECD 211
g) Toxicity for microorganisms - Endpoint: EC10 - Species: Activated sludge = 420 mg/l - Duration h: 3 - Notes: OECD 209

12.2. Persistence and degradability

MB PS POL 55 EV
Biodegradability: The base polymer is not biodegradable
DICUMENE - CAS: 1889-67-4
Biodegradability: Not readily biodegradable - Test: OECD 301 D - Duration h: 28 days - %: 0.2
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
Biodegradability: Not readily biodegradable - Notes: OECD 301B

12.3. Bioaccumulative potential
MB PS POL 55 EV
Not available
DICUMENE - CAS: 1889-67-4
The substance is not expected to be bioaccumulative.
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
Not available

12.4. Mobility in soil
MB PS POL 55 EV
Insoluble in water.
DICUMENE - CAS: 1889-67-4
Insoluble in water. - Test: Log Koc 4.2
BIS (2,4-DI-T-BUTYLPHENYL) PENTAERYTHRITOL DIPHOSPHITE - CAS: 26741-53-7
Not available
Insoluble in water.

12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties
No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects
No other data known and available

## SECTION 13: Disposal considerations

13.1. Waste treatment methods
Treat the disposal of solids as hazardous waste. Dispose of in compliance with local regulations.
Empty packages may contain product residues and care should be taken before disposal

## SECTION 14: Transport information

14.1. UN number or ID number
Not classified as dangerous in the meaning of transport regulations.

14.2. UN proper shipping name

N.A.

14.3. Transport hazard class(es)
N.A.

14.4. Packing group
N.A.

14.5. Environmental hazards
ADR-Enviromental Pollutant: No
IMDG-Marine pollutant: No

14.6. Special precautions for user
N.A.

14.7. Maritime transport in bulk according to IMO instruments
N.A.

## SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:
Restrictions related to the product:
No restriction.

Restrictions related to the substances contained:
No restriction.
Where applicable, refer to the following regulatory provisions :
Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):
Seveso III category according to Annex 1, part 1
None

15.2. Chemical safety assessment
No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

Full text of phrases referred to in Section 3:
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

| Hazard class and hazard category | Code | Description |
|---|---|---|
| Skin Sens. 1B | 3.4.2/1B | Skin Sensitisation, Category 1B |
| Aquatic Chronic 1 | 4.1/C1 | Chronic (long term) aquatic hazard, category 1 |
| Aquatic Chronic 3 | 4.1/C3 | Chronic (long term) aquatic hazard, category 3 |

This safety data sheet has been completely updated in compliance to Regulation 2020/878.
Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

| Classification according to Regulation (EC) Nr. 1272/2008 | Classification procedure |
|---|---|
| Skin Sens. 1B, H317 | Calculation method |
| Aquatic Chronic 3, H412 | Calculation method |

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:
ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

# Safety Data Sheet
# MB PS POL 55 EV
## 22/6/2022, version 2
## 22/6/2022

This MSDS cancels and replaces any preceding release.
The information is considered correct, but it is not exhaustive and it shall be used only as a guide which is based on the current knowledge of the substance or mixture and it is applicable to the safety precautions appropriate for the product.

| | |
|---|---|
| ADR: | European Agreement concerning the International Carriage of Dangerous Goods by Road. |
| ATE: | Acute Toxicity Estimate |
| ATEmix: | Acute toxicity Estimate (Mixtures) |
| CAS: | Chemical Abstracts Service (division of the American Chemical Society). |
| CLP: | Classification, Labeling, Packaging. |
| DNEL: | Derived No Effect Level. |
| EINECS: | European Inventory of Existing Commercial Chemical Substances. |
| GefStoffVO: | Ordinance on Hazardous Substances, Germany. |
| GHS: | Globally Harmonized System of Classification and Labeling of Chemicals. |
| IATA: | International Air Transport Association. |
| IATA-DGR: | Dangerous Goods Regulation by the "International Air Transport Association" (IATA). |
| ICAO: | International Civil Aviation Organization. |
| ICAO-TI: | Technical Instructions by the "International Civil Aviation Organization" (ICAO). |
| IMDG: | International Maritime Code for Dangerous Goods. |
| INCI: | International Nomenclature of Cosmetic Ingredients. |
| KSt: | Explosion coefficient. |
| LC50: | Lethal concentration, for 50 percent of test population. |
| LD50: | Lethal dose, for 50 percent of test population. |
| PNEC: | Predicted No Effect Concentration. |
| RID: | Regulation Concerning the International Transport of Dangerous Goods by Rail. |
| STEL: | Short Term Exposure limit. |
| STOT: | Specific Target Organ Toxicity. |
| TLV: | Threshold Limiting Value. |
| TWA: | Time-weighted average |
| WGK: | German Water Hazard Class. |

# Safety Data Sheet
# MB PS SHARP 45 S BUST
## 9/11/2021, version 1
## 9/11/2021

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Mixture identification:
Trade name: MB PS SHARP 45 S BUST

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Flame retardant masterbatch
Uses advised against:
Consumer use

1.3. Details of the supplier of the safety data sheet
Company:
GREENCHEMICALS SRL
Via Lavoratori Autobianchi, 1
20832 Desio (MB)
Tel: +39 0362 1547305
FAX: +39 039 89 42 754
Competent person responsible for the safety data sheet:
info@greenchemicals.green

1.4. Emergency telephone number
Greenchemicals Srl, tel. +39 347 4313255 (mon-fri 9-19)

Telephone numbers of European Poison Centres:
Austria, tel. +43 1 406 43 43 (Vergiftungsinformationszentrale (VIZ),
Belgium, Luxembourg tel. + 32 (0)70 245 245 (Centre Antipoisons)
Bulgaria, tel.+359 2 9154 409 (National Toxicology Center, Hospital "N.I.Pirogov")
Croatia, tel. +385 1 2348 342 (Poison Control Centre)
Czech Republic, tel. +420 224 919 293, +420 224 915 402 (Toxikologické informacní stredisko)
Cyprus, tel. 1401, (Cyprus Poison Center)
Denmark, tel. +45 82 12 12 12 (Poison Control Hotline)
Estonia, nat. tel. 16662, int. tel.: +372 626 93 90 (Poison information Centre)
Finland tel. 0800 147 111 or +358 (0)9 471 977 (Poison Information Centre)
France, tel. + 33 (0)1 45 42 59 59 (numéro ORFILA (INRS), national number)
Germany
Berlin, tel. +49 (0)30 19240 (Giftnotruf der Charité – Universitätsmedizin Berlin)
Göttingen, tel. +49 (0)551 19 240 (GIZ-Nord)
Bonn, tel. +49 (0)228 19240 (Informationszentrale gegen Vergiftungen)
Homburg, tel. +49 (0)6841 19240 (Informations- und Beratungszentrum für Vergiftungsfälle)
Erfurt, tel. +49 (0)361 730 730 (Giftnotruf Erfurt)
Mainz, tel. +49 (0)6131 19240 (notruf), 06131-23 24 66 (Infoline) (Giftinformationszentrum)

Freiburg, tel. +49 (0)761 19240 (Vergiftungs-Informations-Zentrale)
München, tel. +49 (0)89 19240 (Giftnotruf München)
Greece, tel. +30 210 779 3777 (Poison Information Centre)
Hungary, tel. +36 80 20 11 99 (Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service))
Iceland, tel. +354 543 2222 (Landspitali, The National University Hospital of Iceland):
Ireland, tel. +353 (0)1 8092566 or +353 (0)1 8379964 (National Poison Information Center)
Latvia, tel. +371 67042473 (Valsts Toksikologijas centra Saindešanas un zalu informacijas centrs)
Liechtenstein, emergency tel. 145 (for toxic poisoning)
Lithuania, tel. +370 5 236 20 52 or +370 687 53378 (Neatideliotina informacija apsinuodijus, National Emergency Number)
Malta, tel. +356 2545 0000 (Mater Dey Hospital)
Netherlands, tel. +31 (0)30 274 8888 (Nationaal Vergiftigingen Informatie Centrum (NVIC))
Norway, tel. +47 22 59 13 00 (Norwegian Poison information Centre)
Poland
Warschaw, tel. +48 607 218 174 (Osrodek Kontroli Zatruc)
Gdansk, tel. + 48 (0)58 682 04 04 (Pomorskie CentrumToksykologii)
Poznan, tel. 48 (0)61 847 69 46 (Osrodek Informacji Toksykologicznej Oddzial Toksykologii)
Krakow, tel. 48 (0)12 411 99 99 (Pracownia Informacji Toksykologicznej i Analiz)
Portugal, tel. +351 808 250 143 (Centro de Informação Antivenenos)
Romania, tel. +40 (0)21 318 3606 (centru de informare toxicologica)
Slovenia, tel. (01) 522 52 83 (Centro Per Tossicologia Clinica E Farmacologia)
Slovakia, tel. +421 2 5477 4166 (National Toxicological Information Center)
Spain, tel. + 34 91 562 04 20 (Servicio de Información Toxicológica)
Sweden, emergency tel. 112 or tel. +46 (0)10 456 6700 (Swedish Poison Information Centre)

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP)

Warning, Skin Sens. 1B, May cause an allergic skin reaction.

DECL10: This titanium dioxide-containing product is not classified as carcinogen by inhalation because it does not meet the criteria stated in Note 10, Annex VI of Regulation (EC) 1272/2008.
Note 10: The classification as a carcinogen by inhalation applies only to mixtures in powder form containing 1 % or more of titanium dioxide which is in the form of or incorporated in particles with aerodynamic diameter <= 10 µm.

Adverse physicochemical, human health and environmental effects:
No other hazards

2.2. Label elements
The material in the form in which it is placed on the market (polymeric granules) does not represent a hazard to human health (in case of inhalation or contact with the skin) and to the

aquatic environment because the components are enclosed or embedded in a polymeric base, therefore does not require labeling.
Special provisions according to Annex XVII of REACH and subsequent amendments:
None

2.3. Other hazards
vPvB Substances: None - PBT Substances: None
Other Hazards:
No other hazards known

## SECTION 3: Composition/information on ingredients

3.1. Substances
3.1. Substances
N.A.

3.2. Mixtures
Hazardous components within the meaning of the CLP regulation and related classification:

| Qty | Name | Ident. Number | Classification |
|---|---|---|---|
| >= 1% - < 3% | DICUMENE | CAS: 1889-67-4<br>EC: 217-568-2<br>REACH No.: 01-21199718 24-27-xxxx | 3.4.2/1B Skin Sens. 1B H317 |
| >= 1% - < 3% | Titanium dioxide | Index number: 022-006-00-2<br>CAS: 13463-67-7<br>EC: 236-675-5<br>REACH No.: 01-21194893 79-17-XXXX | The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP). |

This mixture contains >= 1% titanium dioxide (CAS 13463-67-7). The Annex VI classification of titanium dioxide does not apply to this mixture according to its Note 10.

## SECTION 4: First aid measures

4.1. Description of first aid measures
In case of skin contact:
Wash the contaminated clothing before reusing.
Get medical attention if any discomfort continues.
In case of eyes contact:
In case of eye contact, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and it it is easy to do.
In case of Ingestion:
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

If the victim is conscious, rinse the mouth with water, without swallowing.
Do not give anything to drink if the victim is unconscious.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.
In case of respiratory arrest, administer artificial respiration.
If the victim experiences difficulty breathing or discomfort, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

No specific symptoms known

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Treatment:
Treat symptomatically.

## SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water.
CO2 or Dry chemical fire extinguisher.
Extinguishing media which must not be used for safety reasons:
Do not use a high pressure jet of water as it may scatter or spread the fire.

5.2. Special hazards arising from the substance or mixture

Fire or high temperatures cause: Toxic gases / vapors / fumes di - bromine, hydrogen bromide (hydrobromic acid) Carbon dioxide (CO2). Carbon monoxide.
Do not inhale the gases produced by explosion and combustion.
Avoid breathing fumes. If involved in a fire it can produce toxic fumes of phosphorus and carbon oxides
Burning produces noxious and toxic fumes.
Do not inhale explosion and combustion gases.
Slip hazard due to leakage/spillage product.
Hazardous combustion products:
Bromine, hydrobromic acid
carbon dioxide
Carbon monoxide
Phosphorus oxides

5.3. Advice for firefighters

Move undamaged containers from immediate hazard area if it can be done safely.
Use fire fighter's clothing conforming to European standard EN469.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Cool containers exposed to flames with water, even after the flames have gone out.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate the area.
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.

6.3. Methods and material for containment and cleaning up

For containment:
Prevent penetration into the soil / subsoil. Prevent discards into the surface water or into the sewage system. Collect contaminated washing water and treat it as waste to manage according to local regulations.
Keep container tightly closed
For cleaning up:
Ensure adequate ventilation.
Pick up and dispose of with suitable appliance
Ventilate area and wash after material pick up is complete
Other information:
See section 7 for information on safe use
See section 8 for DPI
Refer to section 13 for disposal
Collect immediately, place in a duly marked container and dispose of in compliance with local waste disposal regulations.
If necessary pre-humidify to avoid dust dispersion.

6.4. Reference to other sections

See also section 8 and 13

## SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handle with care to avoid dust formation.
Avoid handling in a manner likely to cause dust formation
Risk of slipping due to leakage/spills of the product.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Contamined clothing should be changed before entering eating areas.
Do not eat, drink or smoke when using this product.
Wash hands after use

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, ventilated and dry area
Store in its original container
It is an inert material at room temperature and can be stocked under normal climate conditions.
Keep container closed, in a well-ventilated place, away from direct sunlight
Keep away from food, drink and animal feed.
Keep containers out of reach of incompatible materials, see section 10
Keep away from food, drink and feed.
Incompatible materials:
See subsection 10.5
Instructions as regards storage premises:
Adequately ventilated premises.

7.3. Specific end use(s)
None in particular

## SECTION 8: Exposure controls/personal protection

8.1. Control parameters
According to the limit value of harmful dusts (expected 10 mg / m3 total dust, 5 mg / m3 respirable dust expected).
Avoid dust dispersion.
Titanium dioxide - CAS: 13463-67-7
- OEL Type: ACGIH TLV - TWA(8h): 10 mg/m3 - Notes: A4 - LRT irr
DNEL Exposure Limit Values
DICUMENE - CAS: 1889-67-4
Worker Professional: 0.353 mg/m3 - Consumer: 0.087 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Worker Professional: 1 mg/kg bw/day - Consumer: 0.5 mg/kg bw/day - Exposure: Human Dermal - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
Consumer: 0.05 mg/kg bw/day - Exposure: Human Oral - Frequency: Long Term, systemic effects - Endpoint: repeated dose toxicity
PNEC Exposure Limit Values
DICUMENE - CAS: 1889-67-4
Target: Fresh Water - Value: 0.08 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Marine water - Value: 0.08 mg/l - Type of hazard: Hazard for Aquatic Organisms
Target: Freshwater sediments - Value: 249.6 mg/kg sediment dw - Type of hazard: Hazard for Aquatic Organisms
Target: Marine water sediments - Value: 249.6 mg/kg sediment dw - Type of hazard: Hazard for Aquatic Organisms
Target: STP - Value: 10 mg/l - Type of hazard: Hazard for Aquatic Organisms

8.2. Exposure controls
Eye protection:

Use safety or protective glasses. European norm to consult: EN 166:2004.

Protection for skin:

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Protection for hands:

PVC, neoprene or rubber gloves (standard: EN 374)
The choice of a suitable glove depends on the working conditions and whether the product is present or in combination with other substances.
The penetration time depends on the characteristics of the brand of gloves used, consult your supplier.
Gloves should be replaced immediately if signs of deterioration are observed.
The applicable European standard is EN 374.

Respiratory protection:

In case of insufficient ventilation, suitable respiratory equipment must be used.
It is recommended to consider the ACGIH Occupational Exposure Limit Values for inert dusts otherwise unclassified (PNOC breathable fraction: 3 mg / mc; PNOC inhalable fraction: 10 mg / mc) in the risk assessment process. If these limits are exceeded, it is advisable to use a P type filter whose class (1, 2 or 3) should be chosen based on the outcome of the risk assessment.

Thermal Hazards:

No data available

Environmental exposure controls:

Avoid release to the environment
Ensure adequate ventilation, localized suction to reduce dust accumulation.

Appropriate engineering controls:

Install an eyewash station and a safety shower.
Minimize dust generation in the air
Provide adequate local and general ventilation
Work according to industrial practice standards of the chemical industry.

## SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Method: | Notes |
|---|---|---|---|
| Appearance and colour: | Granules,White | -- | -- |
| Odour: | odorless | -- | -- |
| Odour threshold: | N.A. | -- | -- |
| pH: | N.A. | -- | the product is a masterbatch |
| Melting point / freezing point: | N.A. | -- | -- |
| Initial boiling point and boiling range: | N.A. | -- | the product is a masterbatch |

| | | | |
|---|---|---|---|
| Flash point: | N.A. | -- | the product is a masterbatch |
| Evaporation rate: | N.A. | -- | -- |
| Solid/gas flammability: | N.A. | -- | -- |
| Upper/lower flammability or explosive limits: | N.A. | -- | -- |
| Vapour pressure: | N.A. | -- | -- |
| Vapour density: | N.A. | -- | -- |
| Relative density: | 1.3-1.5 | -- | -- |
| Solubility in water: | insoluble | -- | -- |
| Solubility in oil: | N.A. | -- | -- |
| Partition coefficient (n-octanol/water): | N.A. | -- | the product is a masterbatch |
| Auto-ignition temperature: | N.A. | -- | -- |
| Decomposition temperature: | > 250 °C | -- | -- |
| Viscosity: | N.A. | -- | -- |
| Explosive properties: | non explosive | -- | -- |
| Oxidizing properties: | non oxidasing | -- | -- |

9.2. Other information

| **Properties** | **Value** | **Method:** | **Notes** |
|---|---|---|---|
| Miscibility: | N.A. | -- | -- |
| Fat Solubility: | N.A. | -- | -- |
| Conductivity: | N.A. | -- | -- |
| Substance Groups relevant properties | N.A. | -- | -- |

## SECTION 10: Stability and reactivity

10.1. Reactivity

Stable at room temperature and normal pressure.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

In normal use and storage conditions dangerous reactions are not predictable.

10.4. Conditions to avoid

Avoid heat, flames and other ignition sources.

10.5. Incompatible materials

Avoid acids, bases and strong oxidizing agents
Reducing agents

10.6. Hazardous decomposition products

Fire or high temperatures cause toxic gases / vapors / fumes of: Bromine, hydrogen bromide (HBr), carbon dioxide (CO2), carbon monoxide (CO)
Fire or high temperatures can create: gas / vapour / toxic smoke of: Phosphorous Oxides (POx), Carbon dioxide (CO2), Carbon oxide (CO).

## SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological information of the product:

MB PS SHARP 45 S BUST

a) acute toxicity
Not classified

b) skin corrosion/irritation
Not classified

c) serious eye damage/irritation
Not classified

d) respiratory or skin sensitisation
The product is classified: Skin Sens. 1B H317

e) germ cell mutagenicity
Not classified

f) carcinogenicity
Not classified

g) reproductive toxicity
Not classified

h) STOT-single exposure
Not classified

i) STOT-repeated exposure
Not classified

j) aspiration hazard
Not classified

Toxicological information of the main substances found in the product:

DICUMENE - CAS: 1889-67-4

a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg bw
Test: LD50 - Route: Dermal - Species: Rabbit > 2000 mg/kg bw

b) skin corrosion/irritation:
Route: Dermal - Species: Rabbit No adverse effects observed (non-irritating).

c) serious eye damage/irritation:
Route: Skin - Species: Rabbit No adverse effects observed

d) respiratory or skin sensitisation:
Test: May cause an allergic skin reaction - Route: Dermal - Species: Mouse - Notes: OECD 429

e) germ cell mutagenicity:
Based on available data, the classification criteria are not met

f) carcinogenicity:
Based on available data, the classification criteria are not met
j) aspiration hazard:
Based on available data, the classification criteria are not met
Titanium dioxide - CAS: 13463-67-7
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 5000 mg/kg
Test: LC50 - Route: Inhalation - Species: Rat > 6.8 mg/kg - Duration: 4h

## SECTION 12: Ecological information

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
MB PS SHARP 45 S BUST
Toxicity - Endpoint: Not available
Toxicological information of the main substances found in the product:
DICUMENE - CAS: 1889-67-4
a) Aquatic acute toxicity - Endpoint: LC50 - Species: Brachydanio rerio > 1000 mg/l - Duration h: 96
c) Short-term toxicity to aquatic invertebrates - Endpoint: EC50 - Species: Daphnia Magna > 1000 mg/l - Duration h: 48
e) Algae toxicity - Endpoint: EC50 crescita - Species: Pseudokirchnerella > 1000 mg/l - Duration h: 72
g) Toxicity for microorganisms - Endpoint: NOEC - Species: Activated sludge > 1000 mg/l - Duration h: 3
Titanium dioxide - CAS: 13463-67-7
a) Aquatic acute toxicity - Endpoint: EC50 - Species: Pseudokirchnerella > 61 mg/l - Duration h: 72
a) Aquatic acute toxicity - Endpoint: EC50 - Species: Bacteria > 1000 mg/l - Duration h: 3
a) Aquatic acute toxicity - Endpoint: NOEL - Species: Onchorhynchus mykiss = 5 mg/l - Duration h: 24
f) Effects in sewage plants - Endpoint: NOEL - Species: Daphnia Magna > 3 mg/l - Duration h: 48

12.2. Persistence and degradability
MB PS SHARP 45 S BUST
Biodegradability: The base polymer is not biodegradable
DICUMENE - CAS: 1889-67-4
Biodegradability: Not readily biodegradable - Test: OECD 301 D - Duration h: 28 days - %: 0.2

12.3. Bioaccumulative potential
MB PS SHARP 45 S BUST
Not available
DICUMENE - CAS: 1889-67-4

Test: LogPow 6.68

12.4. Mobility in soil
MB PS SHARP 45 S BUST
Not available
DICUMENE - CAS: 1889-67-4
Test: Log Koc 4.2 - Notes: @25°C OECD 121

12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None

12.6. Other adverse effects
No other data known

## SECTION 13: Disposal considerations

13.1. Waste treatment methods
Treat the disposal of solids as hazardous waste. Dispose of in compliance with local regulations. Empty packages may contain product residues and care should be taken before disposal

## SECTION 14: Transport information

14.1. UN number

14.2. UN proper shipping name

| | |
|---|---|
| ADR-Shipping Name: | N.A. |
| IATA-Shipping Name: | N.A. |
| IMDG-Shipping Name: | N.A. |

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

| | |
|---|---|
| ADR-Enviromental Pollutant: | No |
| Marine pollutant: | No |

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
N.A.

## SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) 2015/830
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

Full text of phrases referred to in Section 3:

H317 May cause an allergic skin reaction.

| Hazard class and hazard category | Code | Description |
|---|---|---|
| Skin Sens. 1B | 3.4.2/1B | Skin Sensitisation, Category 1B |

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

| Classification according to Regulation (EC) Nr. 1272/2008 | Classification procedure |
|---|---|
| Skin Sens. 1B, H317 | Calculation method |

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.
The information is considered correct, but it is not exhaustive and it shall be used only as a guide which is based on the current knowledge of the substance or mixture and it is applicable to the safety precautions appropriate for the product.

| | |
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| GefStoffVO: | Ordinance on Hazardous Substances, Germany. |
| GHS: | Globally Harmonized System of Classification and Labeling of Chemicals. |
| IATA: | International Air Transport Association. |
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| IMDG: | International Maritime Code for Dangerous Goods. |
| INCI: | International Nomenclature of Cosmetic Ingredients. |
| KSt: | Explosion coefficient. |
| LC50: | Lethal concentration, for 50 percent of test population. |

| | |
|---|---|
| LD50: | Lethal dose, for 50 percent of test population. |
| PNEC: | Predicted No Effect Concentration. |
| RID: | Regulation Concerning the International Transport of Dangerous Goods by Rail. |
| STEL: | Short Term Exposure limit. |
| STOT: | Specific Target Organ Toxicity. |
| TLV: | Threshold Limiting Value. |
| TWA: | Time-weighted average |
| WGK: | German Water Hazard Class. |

# Safety Data Sheet
# STARAID EV G 30
## 7/4/2022, version 2
## 7/4/2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Mixture identification:
Trade name: STARAID EV G 30

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Processing aid masterbatch
Uses advised against:
Consumer use

1.3. Details of the supplier of the safety data sheet
Company:
GREENCHEMICALS SRL
Via Lavoratori Autobianchi, 1
20832 Desio (MB)
Tel: +39 0362 1547305
FAX: +39 039 89 42 754
Competent person responsible for the safety data sheet:
info@greenchemicals.green

1.4. Emergency telephone number
Greenchemicals Srl, tel. +39 347 4313255 (mon-fri 9-19)

Telephone numbers of European Poison Centres:
Austria, tel. +43 1 406 43 43 (Vergiftungsinformationszentrale (VIZ),
Belgium, Luxembourg tel. + 32 (0)70 245 245 (Centre Antipoisons)
Bulgaria, tel.+359 2 9154 409 (National Toxicology Center, Hospital "N.I.Pirogov")
Croatia, tel. +385 1 2348 342 (Poison Control Centre)
Czech Republic, tel. +420 224 919 293, +420 224 915 402 (Toxikologické informacní stredisko)
Cyprus, tel. 1401, (Cyprus Poison Center)
Denmark, tel. +45 82 12 12 12 (Poison Control Hotline)
Estonia, nat. tel. 16662, int. tel.: +372 626 93 90 (Poison information Centre)
Finland tel. 0800 147 111 or +358 (0)9 471 977 (Poison Information Centre)
France, tel. + 33 (0)1 45 42 59 59 (numéro ORFILA (INRS), national number)
Germany
Berlin, tel. +49 (0)30 19240 (Giftnotruf der Charité – Universitätsmedizin Berlin)
Göttingen, tel. +49 (0)551 19 240 (GIZ-Nord)
Bonn, tel. +49 (0)228 19240 (Informationszentrale gegen Vergiftungen)
Homburg, tel. +49 (0)6841 19240 (Informations- und Beratungszentrum für Vergiftungsfälle)
Erfurt, tel. +49 (0)361 730 730 (Giftnotruf Erfurt)
Mainz, tel. +49 (0)6131 19240 (notruf), 06131-23 24 66 (Infoline) (Giftinformationszentrum)

Freiburg, tel. +49 (0)761 19240 (Vergiftungs-Informations-Zentrale)
München, tel. +49 (0)89 19240 (Giftnotruf München)
Greece, tel. +30 210 779 3777 (Poison Information Centre)
Hungary, tel. +36 80 20 11 99 (Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service))
Iceland, tel. +354 543 2222 (Landspitali, The National University Hospital of Iceland):
Ireland, tel. +353 (0)1 8092566 or +353 (0)1 8379964 (National Poison Information Center)
Latvia, tel. +371 67042473 (Valsts Toksikologijas centra Saindešanas un zalu informacijas centrs)
Liechtenstein, emergency tel. 145 (for toxic poisoning)
Lithuania, tel. +370 5 236 20 52 or +370 687 53378 (Neatideliotina informacija apsinuodijus, National Emergency Number)
Malta, tel. +356 2545 0000 (Mater Dey Hospital)
Netherlands, tel. +31 (0)30 274 8888 (Nationaal Vergiftigingen Informatie Centrum (NVIC))
Norway, tel. +47 22 59 13 00 (Norwegian Poison information Centre)
Poland
Warschaw, tel. +48 607 218 174 (Osrodek Kontroli Zatruc)
Gdansk, tel. + 48 (0)58 682 04 04 (Pomorskie CentrumToksykologii)
Poznan, tel. 48 (0)61 847 69 46 (Osrodek Informacji Toksykologicznej Oddzial Toksykologii)
Krakow, tel. 48 (0)12 411 99 99 (Pracownia Informacji Toksykologicznej i Analiz)
Portugal, tel. +351 808 250 143 (Centro de Informação Antivenenos)
Romania, tel. +40 (0)21 318 3606 (centru de informare toxicologica)
Slovenia, tel. (01) 522 52 83 (Centro Per Tossicologia Clinica E Farmacologia)
Slovakia, tel. +421 2 5477 4166 (National Toxicological Information Center)
Spain, tel. + 34 91 562 04 20 (Servicio de Información Toxicológica)
Sweden, emergency tel. 112 or tel. +46 (0)10 456 6700 (Swedish Poison Information Centre)

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

The material in the form in which it is placed on the market (polymeric granules) does not represent a hazard to human health (in case of inhalation or contact with the skin) and to the aquatic environment because the components are enclosed or embedded in a polymeric base, therefore does not require labeling.

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Other Hazards:

No other hazards known

## SECTION 3: Composition/information on ingredients

3.1. Substances

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

None.

## SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.

Wash the contaminated clothing before reusing.

Get medical attention if any discomfort continues.

In case of eyes contact:

In case of eye contact, rinse immediately with plenty of water and seek medical advice.

Remove contact lenses, if present and it it is easy to do.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

If the victim is conscious, rinse the mouth with water, without swallowing.

Do not give anything to drink if the victim is unconscious.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

In case of respiratory arrest, administer artificial respiration.

If the victim experiences difficulty breathing or discomfort, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

No important symptoms known

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:

Treat symptomatically.

## SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

CO2 or Dry chemical fire extinguisher.

Extinguishing media which must not be used for safety reasons:

Do not use a high pressure jet of water as it may scatter or spread the fire.

5.2. Special hazards arising from the substance or mixture

Avoid inhaling combustion products.
Carbon dioxide (CO2) and Carbon monoxide (CO).
Burning produces noxious and toxic fumes.
Slip hazard due to leakage/spillage product.
Hazardous combustion products:
carbon dioxide
Carbon monoxide

5.3. Advice for firefighters

Use fire fighter's clothing conforming to European standard EN469.
Evacuate unauthorized personnel to a safe area
Remove all possible sources of ignition.
Cool containers exposed to flames with water, even after the flames have gone out.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate the area.
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment:
Prevent penetration into the soil / subsoil. Prevent discards into the surface water or into the sewage system. Collect contaminated washing water and treat it as waste to manage according to local regulations.
For cleaning up:
Pick up and dispose of with suitable appliance
Collect in waste containers
Ventilate area and wash after material pick up is complete
Other information:
See section 7 for information on safe use
See section 8 for DPI
Refer to section 13 for disposal
Collect immediately, place in a duly marked container and dispose of in compliance with local waste disposal regulations.
If necessary pre-humidify to avoid dust dispersion.

6.4. Reference to other sections

See also section 8 and 13

## SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handle with care to avoid dust formation.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
Use localized ventilation system.
Risk of slipping due to leakage/spills of the product.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Do not eat, drink or smoke when using this product.
Wash hands after use
Contamined clothing should be changed before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Keep in closed containers and store in a dry, ventilated place.
Store in its original container
Keep containers away from incompatible materials, see section 10.
Keep away from food, drink and feed.
Incompatible materials:
See subsection 10.5
Instructions as regards storage premises:
Cool and adequately ventilated.

7.3. Specific end use(s)

None in particular

## SECTION 8: Exposure controls/personal protection

8.1. Control parameters

According to the limit value of harmful dusts (expected 10 mg / m3 total dust, 5 mg / m3 respirable dust expected).
Avoid dust dispersion.

No occupational exposure limit available

DNEL Exposure Limit Values

No data available

PNEC Exposure Limit Values

No data available

8.2. Exposure controls

Eye protection:

Use safety or protective glasses. European norm to consult: EN 166:2004.

Protection for skin:

Use protective clothing and shoes
Use anti-slip work shoes

Protection for hands:

The applicable European standard is found in EN 374
The choice of a suitable glove depends on the working conditions and whether the product is present or in combination with other substances.
The penetration time depends on the characteristics of the brand of gloves used, consult your supplier.
Gloves should be replaced immediately if signs of deterioration are observed.
The applicable European standard is EN 374.

Respiratory protection:

The respirator must be worn when exposed to dust.
Filter for solid and liquid particles with medium retention capacity (e.g. EN 143 or 149, Type P2 or FFP2)

Thermal Hazards:

No data available

Environmental exposure controls:

Ensure adequate ventilation, localized suction to reduce dust accumulation.
Avoid release to the environment

Appropriate engineering controls:

Provide adequate local and general ventilation
Install an eyewash station and a safety shower.
Work according to industrial practice standards of the chemical industry.

## SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Method: | Notes |
|---|---|---|---|
| Physical state: | Solid | -- | -- |
| Colour: | Colourless | -- | -- |
| Odour: | odorless | -- | -- |
| Melting point/freezing point: | 100-140 °C | -- | -- |
| Boiling point or initial boiling point and boiling range: | N.A. | -- | the product is a masterbatch |
| Flammability: | Non-flammable | -- | -- |
| Lower and upper explosion limit: | N.A. | -- | -- |
| Flash point: | N.A. | -- | Solid mixture in the form of a masterbatch |
| Auto-ignition temperature: | N.A. | -- | -- |
| Decomposition temperature: | N.A. | -- | -- |
| pH: | N.A. | -- | Solid mixture in the form of a masterbatch |
| Kinematic viscosity: | N.A. | -- | -- |
| Solubility in water: | insoluble | -- | -- |

| | | | |
|---|---|---|---|
| Solubility in oil: | N.A. | -- | -- |
| Partition coefficient n-octanol/water (log value): | N.A. | -- | Solid mixture in the form of a masterbatch |
| Vapour pressure: | N.A. | -- | -- |
| Density and/or relative density: | 0.93-0.97 | -- | -- |
| Relative vapour density: | N.A. | -- | -- |

Particle characteristics:

| | | | |
|---|---|---|---|
| Particle size: | N.A. | -- | -- |

9.2. Other information

| **Properties** | **Value** | **Method:** | **Notes** |
|---|---|---|---|
| Explosive properties: | non explosive | -- | -- |
| Oxidizing properties: | non oxidazing | -- | -- |

## SECTION 10: Stability and reactivity

10.1. Reactivity

No particular dangers of reaction with other substances under normal conditions of use.

10.2. Chemical stability

Stable under normal storage conditions.
No decomposition will occur if used and stored under recommended conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat sources

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Fire or high temperatures create: Gas / Vapour toxic smoke of: Carbon dioxide (CO2), Carbon oxide (CO)

## SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

STARAID EV G 30

a) acute toxicity

Not classified

b) skin corrosion/irritation

Not classified

c) serious eye damage/irritation
Not classified
d) respiratory or skin sensitisation
Not classified
e) germ cell mutagenicity
Not classified
f) carcinogenicity
Not classified
g) reproductive toxicity
Not classified
h) STOT-single exposure
Not classified
i) STOT-repeated exposure
Not classified
j) aspiration hazard
Not classified

Toxicological information of the main substances found in the product:
No data available

11.2. Information on other hazards
Endocrine disrupting properties:
No endocrine disruptor substances present in concentration >= 0.1%

## SECTION 12: Ecological information

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
STARAID EV G 30
Toxicity - Endpoint: Not available

12.2. Persistence and degradability
STARAID EV G 30
Biodegradability: The base polymer is not biodegradable

12.3. Bioaccumulative potential
STARAID EV G 30
Not available

12.4. Mobility in soil
STARAID EV G 30
Not available

12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects
No other data known and available

## SECTION 13: Disposal considerations

13.1. Waste treatment methods
Treat the disposal of solids as hazardous waste. Dispose of in compliance with local regulations.
Empty packages may contain product residues and care should be taken before disposal

## SECTION 14: Transport information

14.1. UN number or ID number

14.2. UN proper shipping name

| | |
|---|---|
| ADR-Shipping Name: | N.A. |
| IATA-Shipping Name: | N.A. |
| IMDG-Shipping Name: | N.A. |

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

| | |
|---|---|
| ADR-Enviromental Pollutant: | No |
| Marine pollutant: | No |

14.6. Special precautions for user

14.7. Maritime transport in bulk according to IMO instruments
N.A.

## SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

This safety data sheet has been completely updated in compliance to Regulation 2020/878.

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.

The information is considered correct, but it is not exhaustive and it shall be used only as a guide which is based on the current knowledge of the substance or mixture and it is applicable to the safety precautions appropriate for the product.

| | |
|---|---|
| ADR: | European Agreement concerning the International Carriage of Dangerous Goods by Road. |
| ATE: | Acute Toxicity Estimate |
| ATEmix: | Acute toxicity Estimate (Mixtures) |
| CAS: | Chemical Abstracts Service (division of the American Chemical Society). |
| CLP: | Classification, Labeling, Packaging. |
| DNEL: | Derived No Effect Level. |
| EINECS: | European Inventory of Existing Commercial Chemical Substances. |
| GefStoffVO: | Ordinance on Hazardous Substances, Germany. |
| GHS: | Globally Harmonized System of Classification and Labeling of Chemicals. |
| IATA: | International Air Transport Association. |
| IATA-DGR: | Dangerous Goods Regulation by the "International Air Transport Association" (IATA). |
| ICAO: | International Civil Aviation Organization. |
| ICAO-TI: | Technical Instructions by the "International Civil Aviation Organization" (ICAO). |
| IMDG: | International Maritime Code for Dangerous Goods. |
| INCI: | International Nomenclature of Cosmetic Ingredients. |
| KSt: | Explosion coefficient. |
| LC50: | Lethal concentration, for 50 percent of test population. |
| LD50: | Lethal dose, for 50 percent of test population. |
| PNEC: | Predicted No Effect Concentration. |
| RID: | Regulation Concerning the International Transport of Dangerous Goods by Rail. |
| STEL: | Short Term Exposure limit. |
| STOT: | Specific Target Organ Toxicity. |
| TLV: | Threshold Limiting Value. |
| TWA: | Time-weighted average |
| WGK: | German Water Hazard Class. |

# Safety Data Sheet
# STARAID PE OL 20
## 1/6/2022, version 2
## 1/6/2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Mixture identification:
Trade name: STARAID PE OL 20

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Processing aid masterbatch
Uses advised against:
Consumer use

1.3. Details of the supplier of the safety data sheet
Company:
GREENCHEMICALS SRL
Via Lavoratori Autobianchi, 1
20832 Desio (MB)
Tel: +39 0362 1547305
FAX: +39 039 89 42 754
Competent person responsible for the safety data sheet:
info@greenchemicals.green

1.4. Emergency telephone number
Greenchemicals Srl, tel. +39 347 4313255 (mon-fri 9-19)

Telephone numbers of European Poison Centres:
Austria, tel. +43 1 406 43 43 (Vergiftungsinformationszentrale (VIZ),
Belgium, Luxembourg tel. + 32 (0)70 245 245 (Centre Antipoisons)
Bulgaria, tel.+359 2 9154 409 (National Toxicology Center, Hospital "N.I.Pirogov")
Croatia, tel. +385 1 2348 342 (Poison Control Centre)
Czech Republic, tel. +420 224 919 293, +420 224 915 402 (Toxikologické informacní stredisko)
Cyprus, tel. 1401, (Cyprus Poison Center)
Denmark, tel. +45 82 12 12 12 (Poison Control Hotline)
Estonia, nat. tel. 16662, int. tel.: +372 626 93 90 (Poison information Centre)
Finland tel. 0800 147 111 or +358 (0)9 471 977 (Poison Information Centre)
France, tel. + 33 (0)1 45 42 59 59 (numéro ORFILA (INRS), national number)
Germany
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Bonn, tel. +49 (0)228 19240 (Informationszentrale gegen Vergiftungen)
Homburg, tel. +49 (0)6841 19240 (Informations- und Beratungszentrum für Vergiftungsfälle)
Erfurt, tel. +49 (0)361 730 730 (Giftnotruf Erfurt)
Mainz, tel. +49 (0)6131 19240 (notruf), 06131-23 24 66 (Infoline) (Giftinformationszentrum)
Freiburg, tel. +49 (0)761 19240 (Vergiftungs-Informations-Zentrale)

München, tel. +49 (0)89 19240 (Giftnotruf München)
Greece, tel. +30 210 779 3777 (Poison Information Centre)
Hungary, tel. +36 80 20 11 99 (Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service))
Iceland, tel. +354 543 2222 (Landspitali, The National University Hospital of Iceland):
Ireland, tel. +353 (0)1 8092566 or +353 (0)1 8379964 (National Poison Information Center)
Latvia, tel. +371 67042473 (Valsts Toksikologijas centra Saindešanas un zalu informacijas centrs)
Liechtenstein, emergency tel. 145 (for toxic poisoning)
Lithuania, tel. +370 5 236 20 52 or +370 687 53378 (Neatideliotina informacija apsinuodijus, National Emergency Number)
Malta, tel. +356 2545 0000 (Mater Dey Hospital)
Netherlands, tel. +31 (0)30 274 8888 (Nationaal Vergiftigingen Informatie Centrum (NVIC))
Norway, tel. +47 22 59 13 00 (Norwegian Poison information Centre)
Poland
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Gdansk, tel. + 48 (0)58 682 04 04 (Pomorskie CentrumToksykologii)
Poznan, tel. 48 (0)61 847 69 46 (Osrodek Informacji Toksykologicznej Oddzial Toksykologii)
Krakow, tel. 48 (0)12 411 99 99 (Pracownia Informacji Toksykologicznej i Analiz)
Portugal, tel. +351 808 250 143 (Centro de Informação Antivenenos)
Romania, tel. +40 (0)21 318 3606 (centru de informare toxicologica)
Slovenia, tel. (01) 522 52 83 (Centro Per Tossicologia Clinica E Farmacologia)
Slovakia, tel. +421 2 5477 4166 (National Toxicological Information Center)
Spain, tel. + 34 91 562 04 20 (Servicio de Información Toxicológica)
Sweden, emergency tel. 112 or tel. +46 (0)10 456 6700 (Swedish Poison Information Centre)

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP)
The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).
Adverse physicochemical, human health and environmental effects:
No other hazards

2.2. Label elements
The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).
Hazard pictograms:
None
Hazard statements:
None
Precautionary statements:
None
Special Provisions:
None
Special provisions according to Annex XVII of REACH and subsequent amendments:
None

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Other Hazards:

No other hazards known

## SECTION 3: Composition/information on ingredients

3.1. Substances

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

None.

## SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.
Wash the contaminated clothing before reusing.
Get medical attention if any discomfort continues.

In case of eyes contact:

In case of eye contact, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and it it is easy to do.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.
If the victim is conscious, rinse the mouth with water, without swallowing.
Do not give anything to drink if the victim is unconscious.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.
In case of respiratory arrest, administer artificial respiration.
If the victim experiences difficulty breathing or discomfort, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

No important symptoms known

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:
Treat symptomatically.

## SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water.

CO2 or Dry chemical fire extinguisher.
Extinguishing media which must not be used for safety reasons:
Do not use a high pressure jet of water as it may scatter or spread the fire.

5.2. Special hazards arising from the substance or mixture
Avoid breathing fumes. If involved in a fire it can produce toxic COx fumes.
Burning produces noxious and toxic fumes.
Slip hazard due to leakage/spillage product.
Hazardous combustion products:
carbon dioxide
Carbon monoxide
Nitrogen compounds

5.3. Advice for firefighters
Use fire fighter's clothing conforming to European standard EN469.
Evacuate unauthorized personnel to a safe area
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Cool containers exposed to flames with water, even after the flames have gone out.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate the area.
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up
For containment:
Prevent penetration into the soil / subsoil. Prevent discards into the surface water or into the sewage system. Collect contaminated washing water and treat it as waste to manage according to local regulations.
For cleaning up:
Ensure adequate ventilation.
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.
Ventilate area and wash after material pick up is complete
Other information:
See section 7 for information on safe use
See section 8 for DPI
Refer to section 13 for disposal

Collect immediately, place in a duly marked container and dispose of in compliance with local waste disposal regulations.
If necessary pre-humidify to avoid dust dispersion.

6.4. Reference to other sections
See also section 8 and 13

## SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handle with care to avoid dust formation.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
Risk of slipping due to leakage/spills of the product.
Use localized ventilation system.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Do not eat, drink or smoke when using this product.
Wash hands after use
Contamined clothing should be changed before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities
Keep in closed containers and store in a dry, ventilated place.
Store in its original container
Keep containers away from incompatible materials, see section 10.
Keep away from food, drink and feed.
Incompatible materials:
See subsection 10.5
Instructions as regards storage premises:
Cool and adequately ventilated.

7.3. Specific end use(s)
None in particular

## SECTION 8: Exposure controls/personal protection

8.1. Control parameters
According to the limit value of harmful dusts (expected 10 mg / m3 total dust, 5 mg / m3 respirable dust expected).
Avoid dust dispersion.
No occupational exposure limit available
DNEL Exposure Limit Values
No data available
PNEC Exposure Limit Values
No data available

8.2. Exposure controls

Eye protection:
Use safety or protective glasses. European norm to consult: EN 166:2004.
Protection for skin:
Use protective clothing and shoes
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit(according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).
Protection for hands:
PVC, neoprene or rubber gloves (standard: EN 374)
Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374
The choice of a suitable glove depends on the working conditions and whether the product is present or in combination with other substances.
The penetration time depends on the characteristics of the brand of gloves used, consult your supplier.
Gloves should be replaced immediately if signs of deterioration are observed.
The applicable European standard is EN 374.
Respiratory protection:
In case of insufficient ventilation, suitable respiratory equipment must be used.
Filter for solid and liquid particles with medium retention capacity (e.g. EN 143 or 149, Type P2 or FFP2)
Thermal Hazards:
No data available
Environmental exposure controls:
Ensure adequate ventilation, localized suction to reduce dust accumulation.
Avoid release to the environment
Appropriate engineering controls:
Provide adequate local and general ventilation
Minimize dust generation in the air
Work according to industrial practice standards of the chemical industry.

It is recommended to consider the ACGIH Occupational Exposure Limit Values for inert dusts otherwise unclassified (PNOC breathable fraction: 3 mg / mc; PNOC inhalable fraction: 10 mg / mc) in the risk assessment process. If these limits are exceeded, it is advisable to use a P type filter whose class (1, 2 or 3) should be chosen based on the outcome of the risk assessment.

## SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Method: | Notes |
|---|---|---|---|
| Physical state: | Solido | -- | -- |
| Colour: | Incolore | -- | -- |
| Odour: | inodore | -- | -- |
| Melting point/freezing point: | 100-140 °C | -- | -- |

| | | | |
|---|---|---|---|
| Boiling point or initial boiling point and boiling range: | N.A. | -- | The product is a solid |
| Flammability: | N.A. | -- | -- |
| Lower and upper explosion limit: | N.A. | -- | -- |
| Flash point: | N.A. | -- | Solid mixture in the form of a masterbtach |
| Auto-ignition temperature: | N.A. | -- | -- |
| Decomposition temperature: | N.A. | -- | -- |
| pH: | N.A. | -- | Solid mixture in the form of a masterbtach |
| Kinematic viscosity: | N.A. | -- | -- |
| Solubility in water: | insoluble | -- | -- |
| Solubility in oil: | N.A. | -- | -- |
| Partition coefficient n-octanol/water (log value): | N.A. | -- | Solid mixture in the form of a masterbtach |
| Vapour pressure: | N.A. | -- | -- |
| Density and/or relative density: | 0.6-1.2 g/cm3 | -- | -- |
| Relative vapour density: | N.A. | -- | -- |
| Particle characteristics: | | | |
| Particle size: | N.A. | -- | -- |

9.2. Other information

No other relevant information

## SECTION 10: Stability and reactivity

10.1. Reactivity

Stable at room temperature and normal pressure.

10.2. Chemical stability

Stable under normal storage conditions.
No decomposition will occur if used and stored under recommended conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat and sources of ignition.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Fire or high temperatures cause toxic gases / vapors / fumes of: Nitrogen Oxides and Carbon Oxides COx

## SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

STARAID PE OL 20

a) acute toxicity

Not classified

b) skin corrosion/irritation

Not classified

c) serious eye damage/irritation

Not classified

d) respiratory or skin sensitisation

Not classified

e) germ cell mutagenicity

Not classified

f) carcinogenicity

Not classified

g) reproductive toxicity

Not classified

h) STOT-single exposure

Not classified

i) STOT-repeated exposure

Not classified

j) aspiration hazard

Not classified

Toxicological information of the main substances found in the product:

No data available

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

## SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

STARAID PE OL 20

Toxicity - Endpoint: Not available

12.2. Persistence and degradability

STARAID PE OL 20

Biodegradability: The base polymer is not biodegradable

12.3. Bioaccumulative potential

STARAID PE OL 20
Not available

12.4. Mobility in soil
STARAID PE OL 20
Not available

12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties
No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects
No other data known

## SECTION 13: Disposal considerations

13.1. Waste treatment methods
Treat the disposal of solids as hazardous waste. Dispose of in compliance with local regulations.
Empty packages may contain product residues and care should be taken before disposal

## SECTION 14: Transport information

14.1. UN number or ID number

14.2. UN proper shipping name

| | |
|---|---|
| ADR-Shipping Name: | N.A. |
| IATA-Shipping Name: | N.A. |
| IMDG-Shipping Name: | N.A. |

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

| | |
|---|---|
| ADR-Enviromental Pollutant: | No |
| Marine pollutant: | No |

14.6. Special precautions for user

14.7. Maritime transport in bulk according to IMO instruments
N.A.

## SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

This safety data sheet has been completely updated in compliance to Regulation 2020/878.

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.
The information is considered correct, but it is not exhaustive and it shall be used only as a guide which is based on the current knowledge of the substance or mixture and it is applicable to the safety precautions appropriate for the product.

| | |
|---|---|
| ADR: | European Agreement concerning the International Carriage of Dangerous Goods by Road. |
| ATE: | Acute Toxicity Estimate |
| ATEmix: | Acute toxicity Estimate (Mixtures) |
| CAS: | Chemical Abstracts Service (division of the American Chemical Society). |
| CLP: | Classification, Labeling, Packaging. |
| DNEL: | Derived No Effect Level. |
| EINECS: | European Inventory of Existing Commercial Chemical Substances. |
| GefStoffVO: | Ordinance on Hazardous Substances, Germany. |
| GHS: | Globally Harmonized System of Classification and Labeling of Chemicals. |
| IATA: | International Air Transport Association. |
| IATA-DGR: | Dangerous Goods Regulation by the "International Air Transport Association" (IATA). |
| ICAO: | International Civil Aviation Organization. |
| ICAO-TI: | Technical Instructions by the "International Civil Aviation Organization" (ICAO). |
| IMDG: | International Maritime Code for Dangerous Goods. |
| INCI: | International Nomenclature of Cosmetic Ingredients. |
| KSt: | Explosion coefficient. |
| LC50: | Lethal concentration, for 50 percent of test population. |
| LD50: | Lethal dose, for 50 percent of test population. |
| PNEC: | Predicted No Effect Concentration. |
| RID: | Regulation Concerning the International Transport of Dangerous Goods by Rail. |
| STEL: | Short Term Exposure limit. |
| STOT: | Specific Target Organ Toxicity. |
| TLV: | Threshold Limiting Value. |
| TWA: | Time-weighted average |
| WGK: | German Water Hazard Class. |

# Safety Data Sheet
# STARCELL PS SERIES
## 8/4/2022, version 3
## 8/4/2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Mixture identification:
Trade name: STARCELL PS 60; STARCELL PS 60 O; STARCELL PS 60 OL; STARCELL PS 70, STARCELL PS 60 U, STARCELL PS 65

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
talc masterbatch
Uses advised against:
Consumer use

1.3. Details of the supplier of the safety data sheet
Company:
GREENCHEMICALS SRL
Via Lavoratori Autobianchi, 1
20832 Desio (MB)
Tel: +39 0362 1547305
FAX: +39 039 89 42 754
Competent person responsible for the safety data sheet:
info@greenchemicals.green

1.4. Emergency telephone number
Greenchemicals Srl, tel. +39 347 4313255 (mon-fri 9-19)

Telephone numbers of European Poison Centres:
Austria, tel. +43 1 406 43 43 (Vergiftungsinformationszentrale (VIZ),
Belgium, Luxembourg tel. + 32 (0)70 245 245 (Centre Antipoisons)
Bulgaria, tel.+359 2 9154 409 (National Toxicology Center, Hospital "N.I.Pirogov")
Croatia, tel. +385 1 2348 342 (Poison Control Centre)
Czech Republic, tel. +420 224 919 293, +420 224 915 402 (Toxikologické informacní stredisko)
Cyprus, tel. 1401, (Cyprus Poison Center)
Denmark, tel. +45 82 12 12 12 (Poison Control Hotline)
Estonia, nat. tel. 16662, int. tel.: +372 626 93 90 (Poison information Centre)
Finland tel. 0800 147 111 or +358 (0)9 471 977 (Poison Information Centre)
France, tel. + 33 (0)1 45 42 59 59 (numéro ORFILA (INRS), national number)
Germany
Berlin, tel. +49 (0)30 19240 (Giftnotruf der Charité – Universitätsmedizin Berlin)
Göttingen, tel. +49 (0)551 19 240 (GIZ-Nord)
Bonn, tel. +49 (0)228 19240 (Informationszentrale gegen Vergiftungen)
Homburg, tel. +49 (0)6841 19240 (Informations- und Beratungszentrum für Vergiftungsfälle)
Erfurt, tel. +49 (0)361 730 730 (Giftnotruf Erfurt)

Mainz, tel. +49 (0)6131 19240 (notruf), 06131-23 24 66 (Infoline) (Giftinformationszentrum)
Freiburg, tel. +49 (0)761 19240 (Vergiftungs-Informations-Zentrale)
München, tel. +49 (0)89 19240 (Giftnotruf München)
Greece, tel. +30 210 779 3777 (Poison Information Centre)
Hungary, tel. +36 80 20 11 99 (Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service))
Iceland, tel. +354 543 2222 (Landspitali, The National University Hospital of Iceland):
Ireland, tel. +353 (0)1 8092566 or +353 (0)1 8379964 (National Poison Information Center)
Latvia, tel. +371 67042473 (Valsts Toksikologijas centra Saindešanas un zalu informacijas centrs)
Liechtenstein, emergency tel. 145 (for toxic poisoning)
Lithuania, tel. +370 5 236 20 52 or +370 687 53378 (Neatideliotina informacija apsinuodijus, National Emergency Number)
Malta, tel. +356 2545 0000 (Mater Dey Hospital)
Netherlands, tel. +31 (0)30 274 8888 (Nationaal Vergiftigingen Informatie Centrum (NVIC))
Norway, tel. +47 22 59 13 00 (Norwegian Poison information Centre)
Poland
Warschaw, tel. +48 607 218 174 (Osrodek Kontroli Zatruc)
Gdansk, tel. + 48 (0)58 682 04 04 (Pomorskie CentrumToksykologii)
Poznan, tel. 48 (0)61 847 69 46 (Osrodek Informacji Toksykologicznej Oddzial Toksykologii)
Krakow, tel. 48 (0)12 411 99 99 (Pracownia Informacji Toksykologicznej i Analiz)
Portugal, tel. +351 808 250 143 (Centro de Informação Antivenenos)
Romania, tel. +40 (0)21 318 3606 (centru de informare toxicologica)
Slovenia, tel. (01) 522 52 83 (Centro Per Tossicologia Clinica E Farmacologia)
Slovakia, tel. +421 2 5477 4166 (National Toxicological Information Center)
Spain, tel. + 34 91 562 04 20 (Servicio de Información Toxicológica)
Sweden, emergency tel. 112 or tel. +46 (0)10 456 6700 (Swedish Poison Information Centre)

## SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

The material in the form in which it is placed on the market (polymeric granules) does not represent a hazard to human health (in case of inhalation or contact with the skin) and to the aquatic environment because the components are enclosed or embedded in a polymeric base, therefore does not require labeling.

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Other Hazards:

No other hazards

## SECTION 3: Composition/information on ingredients

3.1. Substances

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

| Qtà | Nome | Numero d'identif. | Classificazione |
|---|---|---|---|
| >= 60% - < 70% | Talc powder | CAS: 14807-96-6<br>EC: 238-877-9 | The product is not classified as dangerous according to Regulation EC1272/2008 (CLP). |

## SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.
Wash the contaminated clothing before reusing.
Get medical attention if any discomfort continues.

In case of eyes contact:

In case of eye contact, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and it it is easy to do.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.
If the victim is conscious, rinse the mouth with water, without swallowing.
Do not give anything to drink if the victim is unconscious.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.
In case of respiratory arrest, administer artificial respiration.
If the victim experiences difficulty breathing or discomfort, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

No specific symptoms known

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:
Treat symptomatically.

## SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Water.
CO2 or Dry chemical fire extinguisher.
Extinguishing media which must not be used for safety reasons:
Do not use a high pressure jet of water as it may scatter or spread the fire.

5.2. Special hazards arising from the substance or mixture
Carbon dioxide (CO2), carbon monoxide (CO).
Avoid inhaling fumes. If involved in a fire can produce toxic fumes of CO.
Slip hazard due to leakage/spillage product.

5.3. Advice for firefighters
Use suitable breathing apparatus .
Cool containers exposed to flames with water, even after the flames have gone out.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate the area.
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up
For containment:
Prevent penetration into the soil / subsoil. Prevent discards into the surface water or into the sewage system. Collect contaminated washing water and treat it as waste to manage according to local regulations.
For cleaning up:
Ensure adequate ventilation.
Wash with plenty of water.
Other information:
See section 8 for DPI
Refer to section 13 for disposal
Collect immediately, place in a duly marked container and dispose of in compliance with local waste disposal regulations.
If necessary pre-humidify to avoid dust dispersion.

6.4. Reference to other sections
See also section 8 and 13

## SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handle with care to avoid dust formation.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Do not eat or drink while working.
Contamined clothing should be changed before entering eating areas.
Wash hands after use

7.2. Conditions for safe storage, including any incompatibilities

It is an inert material at room temperature and can be stored in normal environmental conditions.
Store in a cool, ventilated and dry area
Store in its original container
Keep away from food, drink and feed.
Incompatible materials:
See subsection 10.5
Instructions as regards storage premises:
Cool and adequately ventilated.

7.3. Specific end use(s)

None in particular

## SECTION 8: Exposure controls/personal protection

8.1. Control parameters

According to the limit value of harmful dusts (expected 10 mg / m3 total dust, 5 mg / m3 respirable dust expected).
Avoid dust dispersion.

No occupational exposure limit available for STARCELL PS SERIES

Occupational Exposure Limits (OEL) for talc powder CAS 14807-96-6

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Austria:** | 5 mg/m3 | **Belgium:** | 2 mg/m3 | **Bulgaria** | 3 mg/m3 | **Czech Republic:** | 2 mg/m3 |
| **Denmark:** | 5 mg/m3 | **Finland:** | 5 mg/m3 | **France:** | 5 mg/m3 | **Germany:** | 2 mg/m3 |
| **Greece:** | 2 mg/m3 | **Hungary:** | 2 mg/m3 | **Ireland:** | 0.8 mg/m3 | **Italy:** | 2 mg/m3 |
| **Lithuania:** | 1 mg/m3 | **Luxembourg:** | 2 mg/m3 | **Netherlands:** | 0.25 mg/m3 | **Norway:** | 2 mg/m3 |
| **Poland:** | 1 mg/m3 | **Portugal:** | 2 mg/m3 | **Romania:** | 2 mg/m3 | **Slovakia:** | 2 mg/m3 |
| **Slovenia:** | 2 mg/m3 | **Spain:** | 2 mg/m3 | **Sweden:** | 1 mg/m3 | **Switzerland:** | 2 mg/m3 |
| **UK:** | 1 mg/m3 | | | | | | |

DNEL Exposure Limit Values

Not available

PNEC Exposure Limit Values

Not available

8.2. Exposure controls

Eye protection:

Use safety or protective glasses. European norm to consult: EN 166:2004.

Protection for skin:

Use protective clothing and shoes

Protection for hands:

PVC, neoprene or rubber gloves (standard: EN 374)

The choice of a suitable glove depends on the working conditions and whether the product is present or in combination with other substances.

The penetration time depends on the characteristics of the brand of gloves used, consult your supplier.

Gloves should be replaced immediately if signs of deterioration are observed.

The applicable European standard is EN 374.

Respiratory protection:

In case of insufficient ventilation, suitable respiratory equipment must be used.

Thermal Hazards:

No data available

Environmental exposure controls:

Ensure an adequate general and particolar ventilation of atmospheric discharges

Avoid release to the environment

Appropriate engineering controls:

Provide adequate local and general ventilation

Work according to industrial practice standards of the chemical industry.

It is recommended to consider the ACGIH Occupational Exposure Limit Values for inert dusts otherwise unclassified (PNOC breathable fraction: 3 mg / mc; PNOC inhalable fraction: 10 mg / mc) in the risk assessment process. If these limits are exceeded, it is advisable to use a P type filter whose class (1, 2 or 3) should be chosen based on the outcome of the risk assessment.

## SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Properties | Value | Method: | Notes |
|---|---|---|---|
| Physical state: | N.A. | -- | -- |
| Colour: | white greyish | -- | -- |
| Odour: | odorless | -- | -- |
| Melting point/freezing point: | N.A. | -- | -- |
| Boiling point or initial boiling point and boiling range: | N.A. | -- | -- |
| Flammability: | N.A. | -- | -- |
| Lower and upper explosion limit: | N.A. | -- | -- |
| Flash point: | N.A. | -- | -- |

| | | | |
|---|---|---|---|
| Auto-ignition temperature: | N.A. | -- | -- |
| Decomposition temperature: | > 260°C | -- | -- |
| pH: | N.A. | -- | -- |
| Kinematic viscosity: | N.A. | -- | -- |
| Solubility in water: | insoluble | -- | -- |
| Solubility in oil: | N.A. | -- | -- |
| Partition coefficient n-octanol/water (log value): | N.A. | -- | -- |
| Vapour pressure: | N.A. | -- | -- |
| Density and/or relative density: | N.A. | -- | -- |
| Relative vapour density: | N.A. | -- | -- |
| Particle characteristics: | | | |
| Particle size: | N.A. | -- | -- |

9.2. Other information

| **Properties** | **Value** | **Method:** | **Notes** |
|---|---|---|---|
| Explosive properties: | non explosive | -- | -- |
| Oxidizing properties: | non oxidazing | -- | -- |

## SECTION 10: Stability and reactivity

10.1. Reactivity

The product does not polymerize. No particular dangers of explosion or fire are known

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions known

10.4. Conditions to avoid

Avoid moisture, heat, flames and other sources of ignition. Thermal decomposition> 250 ° C

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

Fire or high temperatures create: Gas / Vapour toxic smoke of: Carbon dioxide (CO2), Carbon oxide (CO)

## SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

STARCELL PS 60; STARCELL PS 60 O; STARCELL PS 60 OL; STARCELL PS 70, STARCELL PS 60 U, STARCELL PS 65

a) acute toxicity
Not classified

b) skin corrosion/irritation
Not classified

c) serious eye damage/irritation
Not classified

d) respiratory or skin sensitisation
Not classified

e) germ cell mutagenicity
Not classified

f) carcinogenicity
Not classified

g) reproductive toxicity
Not classified

h) STOT-single exposure
Not classified

i) STOT-repeated exposure
Not classified

j) aspiration hazard
Not classified

Toxicological information of the main substances found in the product:
No data available

11.2. Information on other hazards
Endocrine disrupting properties:
No endocrine disruptor substances present in concentration >= 0.1%

## SECTION 12: Ecological information

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
No data available for STARCELL PS SERIES

12.2. Persistence and degradability
STARCELL PS 60; STARCELL PS 60 O; STARCELL PS 60 OL; STARCELL PS 70, STARCELL PS 60 U, STARCELL PS 65
Biodegradability: The base polymer is not biodegradable

12.3. Bioaccumulative potential
STARCELL PS 60; STARCELL PS 60 O; STARCELL PS 60 OL; STARCELL PS 70, STARCELL PS 60 U, STARCELL PS 65
Not available

12.4. Mobility in soil

STARCELL PS 60; STARCELL PS 60 O; STARCELL PS 60 OL; STARCELL PS 70, STARCELL PS 60 U, STARCELL PS 65
Insoluble in water.

12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties
No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects
No other data known and available

## SECTION 13: Disposal considerations

13.1. Waste treatment methods
Treat the disposal of solids as hazardous waste. Dispose of in compliance with local regulations. Empty packages may contain product residues and care should be taken before disposal

## SECTION 14: Transport information

14.1. UN number or ID number

| | |
|---|---|
| ADR-UN Number: | NA |

14.2. UN proper shipping name

| | |
|---|---|
| ADR-Shipping Name: | NA |
| IATA-Shipping Name: | NA |
| IMDG-Shipping Name: | NA |

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

| | |
|---|---|
| ADR-Enviromental Pollutant: | No |
| IMDG-Marine pollutant: | No |

14.6. Special precautions for user

14.7. Maritime transport in bulk according to IMO instruments
N.A.

## SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

This safety data sheet has been completely updated in compliance to Regulation 2020/878.

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.
The information is considered correct, but it is not exhaustive and it shall be used only as a guide which is based on the current knowledge of the substance or mixture and it is applicable to the safety precautions appropriate for the product.

| | |
|---|---|
| ADR: | European Agreement concerning the International Carriage of Dangerous Goods by Road. |
| ATE: | Acute Toxicity Estimate |
| ATEmix: | Acute toxicity Estimate (Mixtures) |
| CAS: | Chemical Abstracts Service (division of the American Chemical Society). |
| CLP: | Classification, Labeling, Packaging. |
| DNEL: | Derived No Effect Level. |
| EINECS: | European Inventory of Existing Commercial Chemical Substances. |
| GefStoffVO: | Ordinance on Hazardous Substances, Germany. |
| GHS: | Globally Harmonized System of Classification and Labeling of Chemicals. |
| IATA: | International Air Transport Association. |
| IATA-DGR: | Dangerous Goods Regulation by the "International Air Transport Association" (IATA). |
| ICAO: | International Civil Aviation Organization. |
| ICAO-TI: | Technical Instructions by the "International Civil Aviation Organization" (ICAO). |
| IMDG: | International Maritime Code for Dangerous Goods. |
| INCI: | International Nomenclature of Cosmetic Ingredients. |
| KSt: | Explosion coefficient. |
| LC50: | Lethal concentration, for 50 percent of test population. |
| LD50: | Lethal dose, for 50 percent of test population. |
| PNEC: | Predicted No Effect Concentration. |
| RID: | Regulation Concerning the International Transport of Dangerous Goods by Rail. |
| STEL: | Short Term Exposure limit. |
| STOT: | Specific Target Organ Toxicity. |
| TLV: | Threshold Limiting Value. |
| TWA: | Time-weighted average |
| WGK: | German Water Hazard Class. |

Revision Date: April 2022
Version: 1.2

# MB PS POL 55 EV

## HALOGENATED FLAME RETARDANT MASTERBATCH HBCD FREE

**MB PS POL 55 EV** is a brominated flame retardant masterbatch free from HBCD developed for styrenic resins, especially XPS application.
**MB PS POL 55 EV** contains a brominated polymer added with carefully chosen synergists in a polystyrene matrix to improve the thermal stability and the efficiency of the additives so to decrease the total amount of FR used and the bromine content in final compound. The flame retardant properties are based on the dripping mechanism and is activated by brominated aliphatic chains.
**MB PS POL 55 EV** provides excellent flame retardant properties and allows very high processing temperature. **MB PS POL 55 EV** does not contain SVHC substances and meets RoHS legislation.
Recommended dosage is 2-5%.

| PHYSICAL-CHEMICAL PROPERTIES | |
|---|---|
| Appearance | Granular |
| Color | White to yellowish-grey |
| Specific Gravity, 25°C g/cm$^3$ | 1.4 ± 0.3 |
| Bulk Density, 25°C g/cm$^3$ | 0.750 ± 0.3 |
| Volatiles, % | ≤ 0.4 |

| | |
|---|---|
| HANDLING AND STORAGE: | The processing and use of MB PS POL 55 EV requires adequate technical and professional knowledge. Please consult safety data sheet for further handling, storage and toxicity information.<br>MB PS POL 55 EV has to be stored in tightly sealed original container in a cool and well-ventilated area, away from direct sunlight. |
| PACKAGING: | Standard packaging size of MB PS POL 55 EV is 25 Kg in plastic bags and 1 MT Big Bags. |
| IMPORTANT NOTE | Some plastic additives, fillers or pigments can influence significantly on flame retardant properties. Before to use the products, please be informed.<br>Machine stop at high temperature could create degradation of polymers. Please clean with neutral polymers. |



GREENCHEMICALS S.r.l. Via Lavoratori Autobianchi, 1 -20832 Desio (MB) Phone: +39 0362 1547305
info@greenchemicals.green www.greenchemicals.eu Fax: +39 039 8942754

Revision Date: October 2021
Version: 1.0

# MB PS SHARP 45 S BUST

HALOGENATED FLAME RETARDANT MASTERBATCH HBCD FREE

**MB PS SHARP 45 S BUST** is a HBCD free masterbatch developed for XPS application with a high content of monomeric flame retardant. **MB PS SHARP 45 S BUST** has very efficient flame retardant properties and allows high processing temperatures thanks to high thermal stable components.
**MB PS SHARP 45 S BUST** can guarantee very high performances especially for small thickness.
Recommended dosage is 1-4%.

| PHYSICAL-CHEMICAL PROPERTIES | |
|---|---|
| Appearance | Granular |
| Colour | White to yellowish-grey |
| Density, g/cm$^3$ | 1.4 ± 0.2 |
| Volatiles, ppm | Max. 4000 |

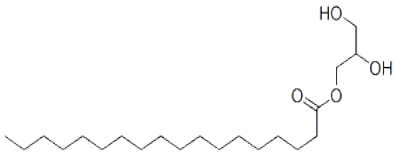
| | |
|---|---|
| HANDLING AND STORAGE: | The processing and use of MB PS SHARP 45 S BUST requires adequate technical and professional knowledge. Please consult safety data sheet for further handling, storage and toxicity information.<br>MB PS SHARP 45 S BUST has to be stored in tightly sealed original container in a cool and well-ventilated area, away from direct sunlight. |
| PACKAGING: | Standard packaging size of MB PS SHARP 45 S BUST is in 25 kg or 1000 KG big bags. |
| IMPORTANT NOTE | Some plastic additives, fillers or pigments can have a significant influence on the properties of the end product. Before using this product, please be informed. Machine stop at high temperature could create degradation of polymers. Please clean with neutral polymers. |



GREENCHEMICALS S.r.l. Via Lavoratori Autobianchi, 1 -20832 Desio (MB) Phone: +39 0362 1547305
info@greenchemicals.green www.greenchemicals.eu Fax: +39 039 8942754

Revision Date: November 2021
Version: 2.6

# STARAID EV G 30
## GMS Masterbatch




**STARAID EV G 30** is a 30% glyceryl monostearate masterbatch in an EVA matrix.
**STARAID EV G 30** is a product developed specially for XPS applications, where it functions as a lubricant when high internal friction occurs.

| PHYSICAL-CHEMICAL PROPERTIES | |
|---|---|
| Appearance | Granular |
| Colour | Milky white or light yellow |
| GMS, % | 30 ± 1 |
| Bulk Density g/cm$^3$ @25°C | 0.60 ± 0.1 |
| Density, g/cm$^3$ @25°C | 0.95 ± 0.1 |
| Humidity, ppm | Max 5000 |

| | |
|---|---|
| HANDLING AND STORAGE: | The processing and use of STARAID EV G 30 requires adequate technical and professional knowledge. Please consult safety data sheet for further handling, storage and toxicity information.<br>STARAID EV G 30 has to be stored in tightly sealed original container in a cool and well-ventilated area, away from direct sunlight. |
| PACKAGING: | Standard packaging size of STARAID EV G 30 is in 25 Kg plastic bags. |
| IMPORTANT NOTE: | Machine stop at high temperature could create degradation of polymers. Please clean with neutral polymers. |



GREENCHEMICALS S.r.l. Via Lavoratori Autobianchi, 1 - 20832 Desio MB Tel.: +39 0362 1547305
info@greenchemicals.green www.greenchemicals.eu Fax: +39 039 8942754

Revision Date: November 2021
Version: 1.2

# STARAID PE OL 20
## Oleamide Masterbatch

**STARAID PE OL 20** is a dispersion of an oleamide in polyethylene which functions as a slip agent. **STARAID PE OL 20** does not contain a mineral filler and is recommended for those applications where a reduction of the coefficient of friction is required. The fast migration offers an immediate slip performance. Recommended Dosage: 0,2% - 0,5%

| PHYSICAL-CHEMICAL PROPERTIES | |
|---|---|
| Appearance | Granular |
| Colour | Milky white or light yellow |
| Oleamide, % | 20 ± 1 |
| Melting Point, °C | > 100°C |
| Moisture, ppm | Max 2000 |

| | |
|---|---|
| HANDLING AND STORAGE: | The processing and use of STARAID PE OL 20 requires adequate technical and professional knowledge. Please consult safety data sheet for further handling, storage and toxicity information.<br>STARAID PE OL 20 has to be stored in tightly sealed original container in a cool and well-ventilated area, away from direct sunlight. |
| PACKAGING: | Standard pack size of STARAID PE OL 20 is 25 Kg in plastic bags. |
| IMPORTANT NOTE | Some plastic additives, fillers or pigments can influence significantly the flame retardant properties of the end product. Before using this product, please be informed.<br>Machine stop at high temperature could create degradation of polymers. Please clean with neutral polymers. |



GREENCHEMICALS S.r.l. Via Lavoratori Autobianchi, 1 - 20832 Desio MB Tel.:+390362 1547305
info@greenchemicals.green www.greenchemicals.eu Fax: +39 039 8942754

Revision Date: November 2021
Version: 2.5

# STARCELL PS 60
## MASTERBATCH TALC

**STARCELL PS 60** is a talc-based masterbatch in a polystyrene matrix. It finds its application as a nucleating additive in polystyrene foams. **STARCELL PS 60** promotes a fine and regular cell size.

PHYSICO-CHEMICAL PROPERTIES

| | |
|---|---|
| Appearance | Granule (Ø ±4-6 mm; length ±2-6 mm) |
| Talc (%) | 60 ± 2 |
| Color | White-grey |
| Density (g/cm$^3$) | 1.6 ± 0.2 |
| Volatiles (%) | 0.50 max |

HANDLING AND STORAGE: The processing and use of STARCELL PS 60 requires adequate technical and professional knowledge. Please consult safety data sheet for further handling, storage and toxicity information.
STARCELL PS 60 has to be stored in tightly sealed original container in a cool and well-ventilated area, away from direct sunlight.

PACKAGING: Standard packaging size of STARCELL PS 60 is 25 Kg.

IMPORTANT NOTE Some plastic additives, fillers or pigments can have a significant influence on overall FR or UV properties of the compound. Before using this product, please be informed. Machine stop at high temperature could create degradation of polymers. Please clean with neutral polymers.



GREENCHEMICALS S.r.l. Via Lavoratori Autobianchi, 1 -20832 Desio (MB) Phone: +39 0362 1547305
info@greenchemicals.green www.greenchemicals.eu Fax: +39 039 8942754

QuickSand disarmed file "msds_ MB PS POL 55 EV_selerant_eng_ver2.0.pdf"
QuickSand disarmed file "TDS_MB PS SHARP 45 S BUST_ver 1.0_eng.pdf"
QuickSand disarmed file "msds_ STARAID PE OL 20_selerant_eng_ver2.0.pdf"
QuickSand disarmed file "msds_ STARCELL PS SERIES _selerant_ENG_ver3.pdf"
QuickSand disarmed file "msds_ STARAID EV G 30_selerant_eng_ver2.pdf"
QuickSand disarmed file "msds_ MB PS SHARP 45 S BUST_selerant_eng_ver1.pdf"
QuickSand disarmed file "TDS_STARCELL PS 60_ver 2.5_eng .pdf"
QuickSand disarmed file "TDS_STARAID PE OL 20_ver 1.2_eng.pdf"
QuickSand disarmed file "TDS_MB PS POL 55 EV_ver 1.2_eng.pdf"
QuickSand disarmed file "TDS_STARAID EV G 30_ver 2.6_eng.pdf"

# SAFETY DATA SHEET

# Formacel™ Z2 Foam Expansion Agent

| Version | Revision Date: | SDS Number: | Date of last issue: 04/07/2022 |
|---|---|---|---|
| 6.10 | 09/16/2022 | 1325643-00043 | Date of first issue: 02/27/2017 |

## SECTION 1. IDENTIFICATION

| | | |
|---|---|---|
| Product name | : | Formacel™ Z2 Foam Expansion Agent |
| Other means of identification | : | No data available |
| SDS-Identcode | : | 130000000358 |

**Manufacturer or supplier's details**

| | | |
|---|---|---|
| Company name of supplier | : | The Chemours Canada Company |
| Address | : | 151 Bloor Street West - 12th Floor<br>Toronto, ON M5S 1S4 Canada |
| Telephone | : | 1-844-773-CHEM (2436) |
| Emergency telephone | : | 1-866-595-1473 (24 hours) |

**Recommended use of the chemical and restrictions on use**

| | | |
|---|---|---|
| Recommended use | : | Foam expansion agent |
| Restrictions on use | : | For professional users only. |

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the Hazardous Products Regulations**

| | | |
|---|---|---|
| Flammable gases | : | Category 1 |
| Gases under pressure | : | Liquefied gas |
| Simple Asphyxiant | : | Category 1 |

**GHS label elements**

Hazard pictograms :

| | | |
|---|---|---|
| Signal Word | : | Danger |
| Hazard Statements | : | H220 Extremely flammable gas.<br>H280 Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation. |
| Precautionary Statements | : | **Prevention:**<br>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.<br>**Response:** |

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.

**Storage:**

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**Other hazards**

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.
Rapid evaporation of the product may cause frostbite.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| | | |
|---|---|---|
| Substance / Mixture | : | Substance |
| Substance name | : | 1,1-Difluoroethane |
| CAS-No. | : | 75-37-6 |
| Common Name/Synonym | : | HFC-152a |

**Components**

| Chemical name | Common Name/Synonym | CAS-No. | Concentration (% w/w) |
|---|---|---|---|
| 1,1-Difluoroethane | HFC-152a | 75-37-6 | >= 80 - <= 100 * |

* Actual concentration or concentration range is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

| | | |
|---|---|---|
| General advice | : | In the case of accident or if you feel unwell, seek medical advice immediately.<br>When symptoms persist or in all cases of doubt seek medical advice. |
| If inhaled | : | If inhaled, remove to fresh air.<br>If not breathing, give artificial respiration.<br>If breathing is difficult, give oxygen.<br>Get medical attention immediately. |
| In case of skin contact | : | Thaw frosted parts with lukewarm water. Do not rub affected area.<br>Get medical attention immediately. |
| In case of eye contact | : | Get medical attention immediately. |
| If swallowed | : | Ingestion is not considered a potential route of exposure. |
| Most important symptoms and effects, both acute and delayed | : | May cause cardiac arrhythmia.<br>Other symptoms potentially related to misuse or inhalation abuse are |

Cardiac sensitization
Anaesthetic effects
Light-headedness
Dizziness
confusion
Lack of coordination
Drowsiness
Unconsciousness
Gas reduces oxygen available for breathing.
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Protection of first-aiders : No special precautions are necessary for first aid responders.

Notes to physician : Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

## SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : None known.

Specific hazards during fire fighting : Vapors may form flammable mixture with air
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Hydrogen fluoride
carbonyl fluoride
Carbon oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fight fire remotely due to the risk of explosion.
Use water spray to cool unopened containers.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Evacuate personnel to safe areas.<br>Only trained personnel should re-enter the area.<br>Remove all sources of ignition.<br>Avoid skin contact with leaking liquid (danger of frostbite).<br>Ventilate the area.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8). |
| Environmental precautions | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Retain and dispose of contaminated wash water. |
| Methods and materials for containment and cleaning up | : | Ventilate the area.<br>Non-sparking tools should be used.<br>Suppress (knock down) gases/vapors/mists with a water spray jet.<br>Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. |

## SECTION 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| Technical measures | : | Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. Close valve after each use and when empty. |
| Local/Total ventilation | : | If sufficient ventilation is unavailable, use with local exhaust ventilation.<br>If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation. |
| Advice on safe handling | : | Avoid breathing gas.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Keep container tightly closed.<br>Wear cold insulating gloves/ face shield/ eye protection.<br>Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point.<br>Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.<br>Prevent backflow into the gas tank.<br>Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems.<br>Close valve after each use and when empty. Do NOT change or force fit connections.<br>Prevent the intrusion of water into the gas tank.<br>Never attempt to lift cylinder by its cap.<br>Do not drag, slide or roll cylinders. |

Use a suitable hand truck for cylinder movement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.
Separate full containers from empty containers.
Do not store near combustible materials.
Avoid area where salt or other corrosive materials are present.
Keep in properly labeled containers.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Keep away from direct sunlight.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.

Materials to avoid : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Very acutely toxic substances and mixtures
Acutely toxic substances and mixtures
Substances and mixtures with chronic toxicity

Recommended storage temperature : < 52 °C

Storage period : > 10 y

Further information on storage stability : The product has an indefinite shelf life when stored properly.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**Engineering measures** : Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust venti-

lation.

**Personal protective equipment**

| | | |
|---|---|---|
| Respiratory protection | : | If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection. |
| Filter type | : | Organic gas and low boiling vapor type |
| Hand protection | | |
| Material | : | Low temperature resistant gloves |
| Remarks | : | Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often! |
| Eye protection | : | Wear the following personal protective equipment:<br>Chemical resistant goggles must be worn.<br>Face-shield |
| Skin and body protection | : | Wear the following personal protective equipment:<br>If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing. |
| Protective measures | : | Wear cold insulating gloves/ face shield/ eye protection. |
| Hygiene measures | : | If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.<br>When using do not eat, drink or smoke.<br>Wash contaminated clothing before re-use. |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | Liquefied gas |
| Color | : | clear, colorless |
| Odor | : | slight, ether-like |
| Odor Threshold | : | No data available |
| pH | : | No data available |

| | | |
|---|---|---|
| Melting point/freezing point | : | -117 °C |
| Initial boiling point and boiling range | : | -24.7 °C<br>(1,013 hPa) |
| Flash point | : | Not applicable |
| Evaporation rate | : | Not applicable |
| Flammability (solid, gas) | : | Flammable |
| Self-ignition | : | The substance or mixture is not classified as pyrophoric. |
| Upper explosion limit / Upper flammability limit | : | Upper flammability limit<br>16.9 %(V)<br>Method: ASTM E681 |
| Lower explosion limit / Lower flammability limit | : | Lower flammability limit<br>3.9 %(V)<br>Method: ASTM E681 |
| Vapor pressure | : | 5,146.24 hPa (25 °C) |
| Relative vapor density | : | 2.4<br>(Air = 1.0) |
| Density | : | 0.90 g/cm³ (25 °C)<br>(as liquid) |
| Solubility(ies)<br>Water solubility | : | 0.2 g/l (25 °C) |
| Partition coefficient: n-octanol/water | : | log Pow: 0.053 (25 °C) |
| Autoignition temperature | : | 440 °C |
| Decomposition temperature | : | No data available |
| Viscosity<br>Viscosity, kinematic | : | Not applicable |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Particle size | : | Not applicable |

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | Not classified as a reactivity hazard. |

| | | |
|---|---|---|
| Chemical stability | : | Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions. |
| Possibility of hazardous reactions | : | Vapors may form flammable mixture with air<br>Can react with strong oxidizing agents.<br>Extremely flammable gas. |
| Conditions to avoid | : | Heat, flames and sparks. |
| Incompatible materials | : | Oxidizing agents |
| Hazardous decomposition products | : | No hazardous decomposition products are known. |

## SECTION 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

Inhalation
Skin contact
Eye contact

**Acute toxicity**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Acute inhalation toxicity | : | LC50 (Rat): > 437500 ppm<br>Exposure time: 4 h<br>Test atmosphere: gas<br><br>No observed adverse effect concentration (Dog): 50000 ppm<br>Test atmosphere: gas<br>Symptoms: Cardiac sensitization<br><br>Lowest observed adverse effect concentration (Dog): 150000 ppm<br>Test atmosphere: gas<br>Symptoms: Cardiac sensitization<br><br>Cardiac sensitisation threshold limit (Dog): 405,000 mg/m³<br>Test atmosphere: gas<br>Symptoms: Cardiac sensitization |

**Skin corrosion/irritation**

Not classified based on available information.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Species | : | Rat |
| Result | : | negative |

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Germ cell mutagenicity - Assessment | : | Weight of evidence does not support classification as a germ cell mutagen. |

**Carcinogenicity**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Carcinogenicity - Assessment | : | Weight of evidence does not support classification as a carcinogen |

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Reproductive toxicity - Assessment | : | Weight of evidence does not support classification for reproductive toxicity |

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Assessment | : | No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less. |

**Repeated dose toxicity**

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Species | : | Rat |

| | | |
|---|---|---|
| NOAEL | : | 67.485 mg/l |
| Application Route | : | inhalation (vapor) |
| Exposure time | : | 104 Weeks |
| Remarks | : | No significant adverse effects were reported |

**Aspiration toxicity**

Not classified based on available information.

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Fish): 295.78 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia): 146.7 mg/l<br>Exposure time: 48 h |
| Toxicity to algae/aquatic plants | : | EC50 (algae): 47.76 mg/l<br>Exposure time: 96 h |

**Ecotoxicology Assessment**

| | | |
|---|---|---|
| Acute aquatic toxicity | : | Harmful to aquatic life. |
| Chronic aquatic toxicity | : | This product has no known ecotoxicological effects. |

**Persistence and degradability**

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Not readily biodegradable. |

**Bioaccumulative potential**

**Components:**

**1,1-Difluoroethane:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: -0.125 |

**Mobility in soil**

No data available

**Other adverse effects**

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

| | | |
|---|---|---|
| Waste from residues | : | Dispose of in accordance with local regulations. |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>Empty pressure vessels should be returned to the supplier.<br>If not otherwise specified: Dispose of as unused product. |

## SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

| | | |
|---|---|---|
| UN number | : | UN 1030 |
| Proper shipping name | : | 1,1-DIFLUOROETHANE |
| Class | : | 2.1 |
| Packing group | : | Not assigned by regulation |
| Labels | : | 2.1 |

**IATA-DGR**

| | | |
|---|---|---|
| UN/ID No. | : | UN 1030 |
| Proper shipping name | : | 1,1-Difluoroethane |
| Class | : | 2.1 |
| Packing group | : | Not assigned by regulation |
| Labels | : | Flammable Gas |
| Packing instruction (cargo aircraft) | : | 200 |
| Packing instruction (passenger aircraft) | : | Not permitted for transport |

**IMDG-Code**

| | | |
|---|---|---|
| UN number | : | UN 1030 |
| Proper shipping name | : | 1,1-DIFLUOROETHANE |
| Class | : | 2.1 |
| Packing group | : | Not assigned by regulation |
| Labels | : | 2.1 |
| EmS Code | : | F-D, S-U |
| Marine pollutant | : | no |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation**

**TDG**

| | | |
|---|---|---|
| UN number | : | UN 1030 |
| Proper shipping name | : | 1,1-DIFLUOROETHANE |
| Class | : | 2.1 |
| Packing group | : | Not assigned by regulation |
| Labels | : | 2.1 |
| ERG Code | : | 115 |

Marine pollutant : no

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

**International Regulations**

Montreal Protocol : 1,1-Difluoroethane

## SECTION 16. OTHER INFORMATION


Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recom-

mendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

| | | |
|---|---|---|
| Sources of key data used to compile the Material Safety Data Sheet | : | Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/ |
| Revision Date | : | 09/16/2022 |
| Date format | : | mm/dd/yyyy |

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

CA / Z8

# HP 152a

## Aerosol Propellant

## Technical Information

### Introduction

Hydrofluorocarbon 152a (HFC-152a) is an aerosol propellant containing no chlorine atoms, and, as such, falls completely outside concerns about stratospheric ozone destruction by chlorofluorocarbons or other chlorinated hydrocarbons. It has zero ozone depletion potential (ODP), and the U.S. Environmental Protection Agency has found it is not a volatile organic compound (VOC), i.e., it has negligible photochemical reactivity (55 FR 11418). The registered trademark of Chemours for HFC- 152a is HP 152a.

HP 152a can be used alone or mixed with other common aerosol propellants in a wide range of personal or industrial product categories where the product is dispensed as a spray, e.g., hair spray, cologne, deodorant, etc. HP 152a also produces excellent foams or mousses and is used in a number of commercial aerosol foam products, e.g., hair styling and skin conditioning mousses.

There has been recent renewed interest in HP 152a as a result of state regulations to limit VOC emissions from a wide range of consumer products, including aerosol products. HP 152a propellant may offer options to meet these regulations in paints, adhesives, and other aerosol products, including personal products, e.g., hair spray.

The vapor pressure of HP 152a is 63 psig at 70 °F (4.16 bar at 20 °C), which is close to that of CFC-12 or dimethyl ether; furthermore, its low molecular weight (66.1) means that a low weight percent of propellant is generally required to produce an acceptable degree of atomization. A similar argument has been used to describe the advantages of hydrocarbon propellants; however, HP 152a has several physical properties that make it superior to the hydrocarbon propellants for certain applications.

HP 152a has an lower explosive limit (LEL) of 3.9 volume percent in air, and it does not give a flame extension or flashback in the standard test used to measure the flammability of aerosol products. Isobutane, on the other hand, has an LEL of 1.8 volume percent in air and gives a flame extension of greater than 22 inches when sprayed through a typical antiperspirant valve. As a result, HP 152a and HP 152a/hydrocarbon blends can be used to produce aerosol formulations possessing a lower degree of flammability than their hydrocarbon-propelled counterparts. This may be an advantage in products with high propellant levels, e.g., antiperspirants.

HP 152a forms azeotropes with each of the three most common hydrocarbon propellants and with HP DME (dimethyl ether). The use of a HP 152a/hydrocarbon or HP 152a/HP DME propellant blend whose composition will not change during use of the aerosol product represents still another attractive alternative.

The liquid density of HP 152a is 0.91 g/cc at 70 °F (21.1 °C) compared to 0.56 g/cc for isobutane. This difference makes it possible to obtain reduced settling rates in products containing suspended solids, improvements in emulsion stability with aqueous-based products, and greater product net weights for equivalent container sizes compared with hydrocarbon-based formulations. It is completely miscible with most organic liquids and other active ingredients used in aerosol formulations, and has a very low taste and odor level. Furthermore, the solubility

of HP 152a in water and its strong resistance to hydrolysis allow its use in a variety of water-based products as well. Several unique formulation possibilities (e.g., quick-breaking foams, hair styling mousses) have already been demonstrated.

Toxicological evaluations have demonstrated that HP 152a has a very low order of acute and chronic inhalation toxicity. The compound is not a mutagen, teratogen or carcinogen. Chemours' work-place exposure limit (AEL) for it is 1000 ppm.

**Table 1.** Physical Properties of HP 152a

| Formula | $CH_3CHF_2$ |
|---|---|
| Molecular Weight | 66.1 |
| Boiling Point, °F (°C) | –13 (-25) |
| Vapor Pressure, psig<br>70 °F<br>130 °F | <br>63<br>177 |
| Vapor Pressure, bar<br>20 °C<br>50 °C | <br>4.16<br>10.86 |
| Liquid Density, g/cc<br>70 °F<br>130 °F<br>20 °C<br>50 °C | <br>0.908<br>0.816<br>0.911<br>0.830 |
| Solubility in Water at 1 atm and 77 °F (25 °C), wt% | 0.28 |
| Kauri-Butanol Value | 11 |
| Solubility Parameter | 7 |
| Liquid Viscosity at 70 °F (21.1 °C), cP | 0.243 |
| Flammability Limits in Air, vol% | 3.9–16.9 |
| Tag. Open Cup Flash Point | ⩽58 °F (⩽50 °C) |
| Ozone Depletion Potential | 0 |
| Global Warming Potential (100 yr. Integrated Time Horizon) | 140 |
| Volatile Organic Compound | No |

## Toxicity Summary of Hydrofluorocarbon 152a

Hydrofluorocarbon 152a has a low order of toxicity on both an acute and chronic basis. Although a TLV® has not been established for HFC-152a, a value of 1,000 ppm (v/v; 8-hour TWA) seems appropriate based on its low toxicity and analogy to other fluorocarbons.

The main physiological action of HFC-152a is that of "weak anesthesia" at high inhaled levels. Its 4-hr approximate lethal concentration (ALC) in rats is 383,000 ppm[1]. Like other halocarbons and hydrocarbons, under gross misuse or abuse conditions, HFC-152a is capable of sensitizing the heart to the body's own adrenalin. However, even in experimental screening studies using dogs and simulating stress with a large intravenous dose of adrenalin, cardiac sensitization was not observed at exposure levels below 150,000 ppm[2].

In a subchronic inhalation study[3], rats were exposed to HFC-152a at 100,000 ppm for 16 hr daily for 2 months with no adverse effects, except for microscopic evidence of slight respiratory irritation. In a more recent study[1], when rats were exposed at 100,000 ppm for 6 hr/day, 5 days/week for 2 weeks, there were no significant effects relative to clinical, hematological, blood chemistry, urine analytical, or histopathological indices.

A lifetime inhalation toxicity study[4] has also been conducted on HFC-152a. Rats (120 #/sex/exposure level) were exposed for 6 hr/day, 5 days/week for 24 months to 0, 2,000 10,000, or 25,000 ppm. Under the conditions of this experimental study, HFC-152a was not carcinogenic and produced no life-shortening toxic effects in rats exposed by inhalation for 24 months at concentrations ⩽ 25,000 ppm (v/v).

In a study[5] designed to determine reproductive toxicity potential, groups of 27 pregnant rats were exposed by inhalation to 5,000 or 20,000 ppm HFC-152a for 6 hr/day on days 6–15 of gestation. There was no evidence of maternal toxicity, embryotoxicity, or teratogenicity under these experimental conditions. In another study[6] (Ames Test) designed to screen for mutagenic potential, HFC-152a was not mutagenic in *Salmonella typhimurium* bacteria, with or without metabolic activation.

In conclusion, based on acute and chronic animal toxicity studies and many years of human experience, HFC-152a at or below an occupational limit (8-hr TWA) of 1,000 ppm should pose no hazard relative to general toxicity, carcinogenicity, mutagenicity, or teratogenicity. This fluorocarbon exhibits a very low degree of reactivity in biological system.

## References

1. Unpublished DuPont Haskell Laboratory Data, 1975.
2. Reinhardt, C. F., et al. Arch. Environ. Hlth. 22: 265–269, 1971.
3. Lester, D., and L. A. Greenberg. Arch. Ind. Hyg. Occup. Med. 2: 335-344, 1950.
4. Unpublished DuPont Haskell Laboratory Data, 1982.
5. Unpublished DuPont Haskell Laboratory Data, 1979.
6. Logstaff, E., et al. Toxicol. Appl. Pharmacol. 72: 15–31, 1984.

**Figure 1.** Saturated Vapor Pressure of HP 152a

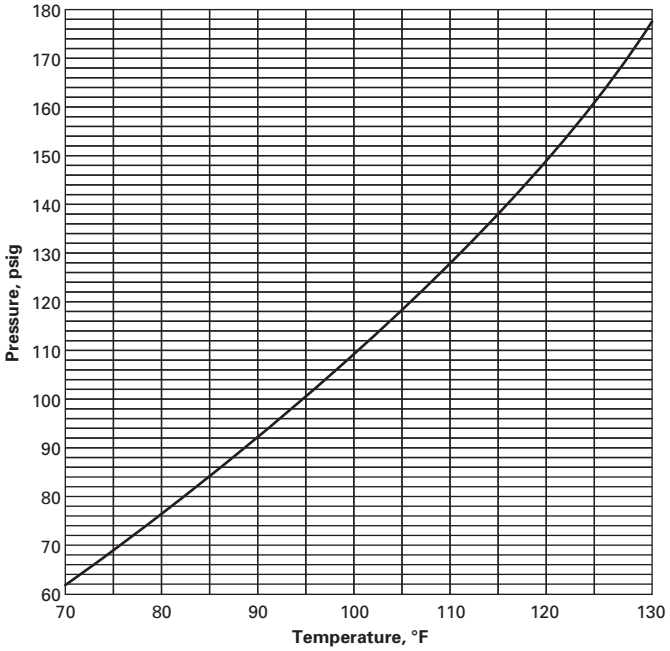
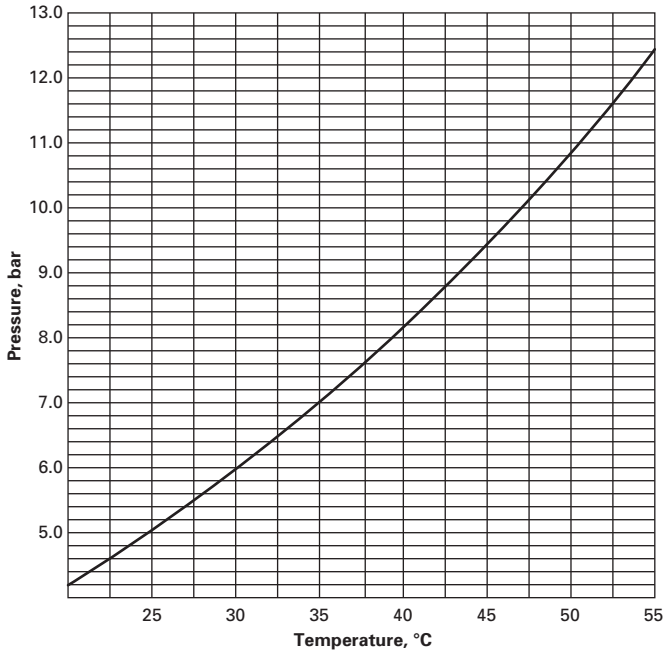



**Figure 2.** Saturated Vapor Pressure of HP 152a




## Triangular-Coordinate Charts

The following triangular-coordinate charts are available from the Fluorochemicals Laboratory. They provide vapor pressure data at 70 °F (21.1 °C) for each of the ternary mixtures listed below:

**Components**

- HP 152a/Propane/Isobutane
- HP 152a/n-Butane/Ethanol
- HP 152a/Isobutane/Ethanol
- HP 152a/Ethanol/Water
- HP 152a/Ethanol/HP DME
- HP 152a/Ethanol/Freon™ 134a

## Stability/Compatibility of HP 152a

HP 152a is a relatively inert chemical. It does not undergo reaction with the solvents commonly used in aerosol formulations, e.g., ethanol, chlorocarbons, hydrocarbon solvents, etc. It is also very stable to hydrolysis, especially under alkaline conditions. It is a propellant in several water-based commercial hair styling mousse formulations packaged in aluminum containers. Although no stability problems resulting from the use of HP 152a as a propellant are anticipated, formulations should be thoroughly tested prior to marketing them to ensure this is the case.

HP 152a is compatible with a wide range of elastomers and plastics. As an example, Buna N, butyl, or Neoprene gasketing materials can be used with it. However, like many other fluorochemicals, HP 152a is not compatible with Viton™. It does not craze or attack the plastics commonly used in the aerosol industry. Compatibility tests have been run with several plastics that are prone to attack by solvents and propellants. The results are presented below.

**Table 2.** Compatibility of Selected Plastics with HP 152a

| Plastic | 4 hr at 75 °F (23.9 °C) |
|---|---|
| ABS Polymer | 0 |
| Polycarbonate | 0 |
| Polymethyl methracrylate | 0 |
| Polystyrene | 0 |

**Codes**

0 = Suitable for use in contact with HP 152a

1 = Probably suitable for use

2 = Probably not suitable for use

3 = Not suitable for use

4 = Plastic disintegrated or dissolved in liquid

## Binary Azeotropes of HP 152a

**Table 3.** Binary Azeotropes of HP 152a with Hydrocarbon and Dimethyl Ether Propellants

| | | Vapor Pressure | | | |
|---|---|---|---|---|---|
| | | psig | | bar | |
| Azeotrope | Composition | 70 °F* | 130 °F | 21.1 °C | 54.4 °C |
| HP 152a/Propane | 45/55 | 130 | 295 | 8.96 | 20.34 |
| HP 152a/Isobutane | 75/25 | 72 | 190 | 4.96 | 13.10 |
| HP 152a/n-Butane | 85/15 | 68 | 180 | 4.69 | 12.41 |
| HP 152a/HP DME | 55/45 | 61 | 169 | 4.21 | 11.65 |

*Handbook of Aerosol Technology, 2nd Ed., P. A. Sanders.

**Note 1:** The composition of an azeotrope varies with temperature. The values given are average values over the temperature range 70–130 °F (21.1–54.4 °C).

**Note 2:** "The Aerosol Handbook," 2nd Ed., M. A. Johnsen gives the composition of the HFC-152aa/propane azeotrope as 79/21, respectively.

**Table 4.** Spray Characteristics of Blends of HP 152a with Ethanol and Water

| Composition, wt% | | | Vapor Pressure | | |
|---|---|---|---|---|---|
| HP 152a | Water | EtOH | psig at 70 °F | bar at 21.1 °C | Spray Characteristic* |
| 72 | — | 28 | 50 | 3.45 | Fine |
| 45 | — | 55 | 40 | 2.76 | Fine |
| 45 | 9 | 46 | 50 | 3.45 | Fine |
| 30 | — | 70 | 30 | 2.07 | Medium |
| 30 | 10 | 60 | 40 | 2.76 | Medium |
| 30 | 20 | 50 | 50 | 3.15 | Medium |
| 21.5 | — | 78.5 | 20 | 1.38 | Coarse |
| 21.5 | 11.5 | 67 | 30 | 2.07 | Coarse |
| 21.5 | 19.5 | 59 | 40 | 2.76 | Coarse |
| 21.5 | 29 | 48.5 | 50 | 3.45 | Coarse/Streamy |
| 10 | 25 | 65 | 20 | 1.38 | Streamy |
| 10 | 34 | 56 | 30 | 2.07 | Streamy |
| 10 | 40 | 50 | 40 | 2.76 | Streamy |
| 5 | 38.5 | 56.5 | 20 | 1.38 | Stream |
| 5 | 47 | 48 | 30 | 2.07 | Stream |
| 5 | 52 | 43 | 40 | 2.76 | Stream |

*Precision #0.80" × 0.018" valve and 0.018" standard actuator.

## Classification of Spray Characteristics

**Very Fine**
The spray disappears at a distance of about 2–3 ft after it leaves the actuator. The spray causes no wetting of paper when sprayed from a distance of about 1 ft.

**Fine**
The spray travels for a distance of at least 5–6 ft before disappearing. Slight wetting of paper occurs at a distance of about 1 ft.

**Medium**
The spray tends to travel in a horizontal path, and the particle size is noticeably larger than that in a fine spray. Definite wetting of paper occurs at a distance of about 1 ft.

**Coarse**
Fallout of large droplets from the spray is evident. Heavy wetting of paper occurs at a distance of 2 ft.

**Streamy**
A broken stream consisting of mixture of spray and stream.

**Stream**
A stream with little or no spray.

Sprays with properties intermediate between any of the groups shown above are classified as medium-fine, medium-coarse, etc.

## Flame Projection Test Results

**Table 5.** Prototype Products Using HP 152a Propellant

| Product | Valve | Prop. Conc. | Solvent | Flame Proj., in | Flash Back, in | VP (70 °F), psig |
|---|---|---|---|---|---|---|
| Hair Spray | (1) | 25/75 | EtOH | 17 | 6 | 37 |
| Personal Deodorant | (2) | 30/70 | EtOH | 15 | 0 | 49 |
| Cologne | (3) | 18/82 | EtOH | 7 | 3 | 27 |
| Topical Antiseptic | (4) | 75/25 | EtOH | 0 | 0 | 60 |
| Pan Sprays | (5) | 25/75 | Corn oil | 19 | 0 | 62 |
| Space Insecticide | (6) | 32/68 | Kerosene and Trichloroethane | 17 | 0 | 34 |
| Hornet/Wasp Spray | (7) | 17/83 | IPA and Trichloroethane | 16 | 0 | 30 |
| Residual Insecticide | (8) | 15/85 | Kerosene | 22+ | 4 | 47 |
| Spray Lubricant | (6) | 95/05* | Trichloroethane | 2 | 0 | 34 |
| Mold Release Spray | (9) | 90/05** | Trichloroethane | 2 | 0 | 28 |
| Electronic Cleaner | (10) | 10/90 | Freon™ TF | 0 | 0 | 22 |
| Penetrating Oil | (6) | 25/75 | — | 22 | 0 | 37 |

(1) Precision .013/.018 valve, .016 MBRT actuator.
(2) Precision .018/.025, .013 vapor tap valve, .016 MBRT actuator.
(3) Risdon .016/.040 valve, .016 MB actuator.
(4) Precision .025/.018, .013 vapor tap valve, .016 MBRT actuator.
(5) Precision .013/.010 valve, .013 MB actuator.
(6) Precision .080/.018 valve, .018 standard actuator.
(7) Precision .080/3x.040, .020 total release actuator.
(8) Precision .080/.018 valve, .025 total release actuator.
(9) Newman-Green B-14-10 valve, model 150-16-16 actuator.
(10) Newman-Green B-14-10 valve, model 110-20-32 actuator or Model 102-20-18 actuator with #805 extension tube.
*"Propellant" was HP 152a/1,1,1-trichloroethane (30/70)
***"Propellant" was HP 152a/1,1,1-trichloroethane (20/80)

## Flame Projection Test Results (Metric Units)

**Table 6.** Prototype Products Using HP 152a Propellant

| Product | Valve | Prop. Conc. | Solvent | Flame Proj., cm | Flash Back, cm | VP (20 °C), bar |
|---|---|---|---|---|---|---|
| Hair Spray | (1) | 25/75 | EtOH | 43.2 | 15.2 | 2.55 |
| Personal Deodorant | (2) | 30/70 | EtOH | 38.1 | 0 | 3.38 |
| Cologne | (3) | 18/82 | EtOH | 17.8 | 7.6 | 1.86 |
| Topical Antiseptic | (4) | 75/25 | EtOH | 0 | 0 | 4.14 |
| Pan Sprays | (5) | 25/75 | Corn oil | 48.3 | 0 | 4.27 |
| Space Insecticide | (6) | 32/68 | Kerosene and Trichloroethane | 43.2 | 0 | 2.34 |
| Hornet/Wasp Spray | (7) | 17/83 | IPA and Trichloroethane | 40.6 | 0 | 2.07 |
| Residual Insecticide | (8) | 15/85 | Kerosene | 55.9+ | 10.2 | 3.24 |
| Spray Lubricant | (6) | 95/05* | Trichloroethane | 5.1 | 0 | 2.34 |
| Mold Release Spray | (9) | 90/05** | Trichloroethane | 5.1 | 0 | 1.93 |
| Electronic Cleaner | (10) | 10/90 | Freon™ TF | 0 | 0 | 1.52 |
| Penetrating Oil | (6) | 25/75 | — | 55.9 | 0 | 2.55 |

(1) Precision .330/.457 valve, .406 MBRT actuator.
(2) Precision .457/.635, .330 vapor tap valve, .406 MBRT actuator.
(3) Risdon .406/1.016 valve, .406 MB actuator.
(4) Precision .635/.457, .330 vapor tap valve, .406 MBRT actuator.
(5) Precision .330/.254 valve, .330 MB actuator.
(6) Precision 2.032/.457 valve, .457 standard actuator.
(7) Precision 2.032/3x1.016, .508 total release actuator.
(8) Precision 2.032/.457 valve, .635 total release actuator.
(9) Newman-Green B-14-10 valve, model 150-16-16 actuator.
(10) Newman-Green B-14-10 valve, model 110-20-32 actuator or Model 102-20-18 actuator with #805 extension tube.
*"Propellant" was HP 152a/1,1,1-trichloroethane (30/70).
***"Propellant" was HP 152a/1,1,1-trichloroethane (20/80).

**For more information about propellants from Chemours, visit Chemours.com/Propellants**



Replaces: H-64411
C-10777 (5/17)

KLEIBERIT® ADHESIVES • COATINGS

# KLEIBERIT 761.8

## Cleaning agent

## Advantages

- Good mixing properties with PUR adhesives
- Has the same processing temperature as the KLEIBERIT PUR adhesives

## Properties of the hotmelt cleaning agent

| | |
|---|---|
| **Specific gravity:** | approx. 1.22 g/cm³ |
| **Melting point:** | 50 ± 5 °C |
| **Colour:** | white |
| **Processing temperature:** | 100 - 140°C |
| **Identification:** | not required according to EU regulations, (see our safety data sheet) |

**Attention:**
KLEIBERIT 761.8 gives off vapours, even if the recommended working temperature has been observed. Therefore, precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.

## Application techniques

When using reactive PUR hotmelt adhesives, it is important that flat lamination line be thoroughly cleaned each time that there is an extended period of inactivity (e.g. overnight or at week end), or when there is a system change. This is performed by coating and melting the cleaning agent onto the parts affected, allowing it to work-in, and then removing it when done.

**Attention!**
Before PUR hotmelt adhesives are again used in these machines, KLEIBERIT 761.8 has to be completely drained off from the application rollers.

If stored or transported at higher temperatures, KLEIBERIT 761.8 could have clumps.
This does not affect the effectiveness of the cleaning agent.

## Packaging

Fiber Drum, 136 kg net
Plastic Pail, 20 kg net

Additional packaging sizes available upon request.

## Storage

KLEIBERIT 761.8 can be stored for approximately 1 year.
Keep in a cool and dry place.

Version 2020/07/02 al; replaces previous editions





**KLEIBERIT SE & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten/Germany
Phone: +49 7244 62-0, Fax: +49 7244 700-0
Email: info@kleiberit.com, **www.kleiberit.com**

# KLEIBERIT 761.8



**Waste Disposal**
Disposal of contents and/or containers should comply with all applicable federal, state and local regulations.
Our containers are made of recyclable material.

**Service**
Our application department may be consulted at any time without obligation. The statements made herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service which is rendered free of charge and without obligation.



**KLEIBERIT SE & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten/Germany
Phone: +49 7244 62-0, Fax: +49 7244 700-0
Email: info@kleiberit.com, **www.kleiberit.com**

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

* 
## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *761.8***

· **CAS Number:**
4196-89-8

· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
No further relevant information available.

· **Application of the substance / the mixture** Cleaning agent/ Cleaner

· **1.3. Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

KLEIBERIT SE & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany

KLEIBERIT Adhesives UK
Max Becker Drive, Unit 3 Brunel Way
Stephenson Ind.Est.
Coalville
Leicesters. LE67 3HF
United Kingdom

· **Further information obtainable from:**
Telefon: +49-(0)7244-62-0
FAX: +49-(0)7244-700-0

Phone +44-1530-83 66 99
FAX +44-1530-83 66 77
uksales@kleiberit.com

· **1.4. Emergency telephone number: +44 1235 239670** European regional number (European languages)

* 
## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The substance is not classified, according to the GB CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
Safety data sheet available on request.
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

* 
## SECTION 3: Composition/information on ingredients

· **3.1. Substances**
· **Registry-No's Identification / Classification GHS-CLP**
4196-89-8 neopentyl glycol dibenzoate
· **Identification number(s)**
· **EC number:** 224-081-9

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

*(Contd. on page 2)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 1)*

· **After skin contact:** Rinse with warm water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Call for a doctor immediately.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.
· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.
· **Further information about storage conditions:** None.
· **7.3. Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:** Not required.

· **8.2. Exposure controls**
limit the exposure to:
8 hours
· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.

*(Contd. on page 3)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 2)*

· **Respiratory protection:** Filter A/P2 (EN 14387)
· **Hand protection** Protective gloves
· **Material of gloves** Synthetic rubber gloves
· **Eye/face protection** Safety glasses
· **Body protection:** Protective work clothing

## SECTION 9: Physical and chemical properties

· **9.1. Information on basic physical and chemical properties**
· **General Information**

| | |
|---|---|
| · **Physical state** | Solid |
| · **Colour:** | Whitish |
| · **Odour:** | Weak, characteristic |
| · **Odour threshold:** | Not determined. |
| · **Melting point/freezing point:** | 49 °C |
| · **Boiling point or initial boiling point and boiling range** | 271 °C |
| · **Flammability** | Product is not flammable. |
| · **Lower and upper explosion limit** | |
| · **Lower:** | Not determined. |
| · **Upper:** | Not determined. |
| · **Flash point:** | 218 °C |
| · **Ignition temperature:** | Not applicable. |
| · **Decomposition temperature:** | Not determined. |
| · **pH** | Not applicable. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Kinematic viscosity** | Not applicable. |
| · **Dynamic:** | Not applicable. |
| · **Solubility** | |
| · **water:** | Insoluble. |
| · **Partition coefficient n-octanol/water (log value)** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density and/or relative density** | |
| · **Density at 20 °C:** | ca. 1.14 g/cm³ |
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |

· **9.2. Other information**

| | |
|---|---|
| · **Appearance:** | |
| · **Form:** | Solid |
| · **Important information on protection of health and environment, and on safety.** | |
| · **Auto-ignition temperature:** | Not determined. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Change in condition** | |
| · **Evaporation rate** | Not applicable. |

· **Information with regard to physical hazard classes**

| | |
|---|---|
| · **Explosives** | Void |
| · **Flammable gases** | Void |
| · **Aerosols** | Void |

*(Contd. on page 4)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

**Trade name / Article-No: KLEIBERIT *761.8***

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| | |
|---|---|
| · **Oxidising gases** | Void |
| · **Gases under pressure** | Void |
| · **Flammable liquids** | Void |
| · **Flammable solids** | Void |
| · **Self-reactive substances and mixtures** | Void |
| · **Pyrophoric liquids** | Void |
| · **Pyrophoric solids** | Void |
| · **Self-heating substances and mixtures** | Void |
| · **Substances and mixtures, which emit flammable gases in contact with water** | Void |
| · **Oxidising liquids** | Void |
| · **Oxidising solids** | Void |
| · **Organic peroxides** | Void |
| · **Corrosive to metals** | Void |
| · **Desensitised explosives** | Void |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.
· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** No dangerous decomposition products known.

## SECTION 11: Toxicological information

· **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity**
· **LD/$LC_{50}$ values relevant for classification:**

**4196-89-8 neopentyl glycol dibenzoate**
Oral $LD_{50}$ >5,000 mg/kg (rat)
Dermal $LD_{50}$ >20,000 mg/kg (rabbit)
· **11.2 Information on other hazards**
· **Endocrine disrupting properties**

Substance is not listed.

## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:**

**4196-89-8 neopentyl glycol dibenzoate**
$LC_{50}$ >0.28 mg / l / 96h (fish)
$LC_{50}$ >0.89 mg / l / 48h (water flea - daphnia)
$IC_{50}$ >0.358 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)

*(Contd. on page 5)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 4)*

· **12.2. Persistence and degradability** No further relevant information available.

· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **Additional ecological information:**
· **General notes:** Not known to be hazardous to water.

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN number or ID number**
· **ADR, IMDG, IATA** Void
· **14.2. UN proper shipping name**
· **ADR, IMDG, IATA** Void
· **14.3. Transport hazard class(es)**
· **Class** Void
· **14.4. Packing group**
· **ADR, IMDG, IATA** Void
· **14.5. Environmental hazards:** Not applicable.
· **14.6. Special precautions for user** Not applicable.
· **14.7. Maritime transport in bulk according to IMO instruments** Not applicable.

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*(Contd. on page 6)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 24.11.2022 Version-No. 8 (replaces version 7) Revision: 13.12.2021

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 5)*

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Safety & Environment
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

# Safety data sheet
## according to the Globally Harmonized System

Printing date 05.01.2022 Version-No. 8 Revision: 05.01.2022

* 
## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *761.8***

· **CAS Number:**
4196-89-8
· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Cleaning agent/ Cleaner

· **1.3. Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KLEIBERIT SE & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany
· **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
· **1.4. Emergency telephone number:**
**+44 1235 239670** European regional number (European languages)
**+44 1235 239670**
European regional number (European languages)
**+44 1235 239671**
Middle Eastern/African regional number (Middle Eastern/African languages)
**+1 215 207 0061**
Americas regional number (English, Spanish, Portuguese)
**+65 3158 1412**
Asia Pacific regional number (English, Bahasa, Malaysia, Hindi, Japanese, Korean, Mandarin, Tagalog)

* 
## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The substance is not classified, according to the CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

* 
## SECTION 3: Composition/information on ingredients

· **3.1. Substances**
· **Registry-No's Identification / Classification GHS-CLP**
4196-89-8 neopentyl glycol dibenzoate

*(Contd. on page 2)*

# Safety data sheet
## according to the Globally Harmonized System

Printing date 05.01.2022 Version-No. 8 Revision: 05.01.2022

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 1)*

· **Identification number(s)**
· **EC number:** 224-081-9

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Rinse with warm water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Call for a doctor immediately.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.
· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.
· **Further information about storage conditions:** None.
· **7.3. Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**
· **Additional information about design of technical facilities:** No further data; see item 7.

· **Ingredients with limit values that require monitoring at the workplace:** Not required.

· **8.2. Exposure controls**
limit the exposure to:
8 hours

· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.

*(Contd. on page 3)*

# Safety data sheet
**according to the Globally Harmonized System**

Printing date 05.01.2022 Version-No. 8 Revision: 05.01.2022

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 2)*

· **Respiratory protection:** Filter A/P2 (EN 14387)
· **Protection of hands:** Protective gloves
· **Material of gloves** Synthetic rubber gloves
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing

## SECTION 9: Physical and chemical properties

· **9.1. Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

| | |
|---|---|
| **Form:** | Solid |
| **Colour:** | Whitish |
| · **Odour:** | Weak, characteristic |
| · **Odour threshold:** | Not determined. |
| · **pH-value:** | Not applicable. |
| · **Change in condition** | |
| **Melting point/freezing point:** | 49 °C |
| **Initial boiling point and boiling range:** | 271 °C |
| · **Flash point:** | 218 °C |
| · **Flammability (solid, gas):** | Product is not flammable. |
| · **Ignition temperature:** | Not applicable. |
| · **Decomposition temperature:** | Not determined. |
| · **Auto-ignition temperature:** | Not determined. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Explosion limits:** | |
| **Lower:** | Not determined. |
| **Upper:** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density at 20 °C:** | ca. 1.14 g/cm³ |
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |
| · **Evaporation rate** | Not applicable. |
| · **Solubility in / Miscibility with water:** | Insoluble. |
| · **Partition coefficient: n-octanol/water:** | Not determined. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Dynamic:** | Not applicable. |
| · **Kinematic:** | Not applicable. |
| · **9.2. Other information** | No further relevant information available. |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.

*(Contd. on page 4)*

# Safety data sheet
## according to the Globally Harmonized System

Printing date 05.01.2022 Version-No. 8 Revision: 05.01.2022

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 3)*

· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** No dangerous decomposition products known.

## SECTION 11: Toxicological information

· **11.1. Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **$LD/LC_{50}$ values relevant for classification:**

**4196-89-8 neopentyl glycol dibenzoate**
Oral $LD_{50}$ >5,000 mg/kg (rat)
Dermal $LD_{50}$ >20,000 mg/kg (rabbit)
· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Additional toxicological information:**
· **Repeated dose toxicity**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:**

**4196-89-8 neopentyl glycol dibenzoate**
$LC_{50}$ >0.28 mg / l / 96h (fish)
$LC_{50}$ >0.89 mg / l / 48h (water flea - daphnia)
$IC_{50}$ >0.358 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)
· **12.2. Persistence and degradability** No further relevant information available.
· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **Additional ecological information:**
· **General notes:** Not known to be hazardous to water.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6. Other adverse effects** No further relevant information available.

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
· **Recommendation:**
Non contaminated packagings may be recycled.

*(Contd. on page 5)*

# Safety data sheet
## according to the Globally Harmonized System

Printing date 05.01.2022 Version-No. 8 Revision: 05.01.2022

**Trade name / Article-No: KLEIBERIT *761.8***

*(Contd. of page 4)*

Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN-Number**
· **ADR, IMDG, IATA** Void
· **14.2. UN proper shipping name**
· **ADR, IMDG, IATA** Void
· **14.3. Transport hazard class(es)**
· **Class** Void
· **14.4. Packing group**
· **ADR, IMDG, IATA** Void
· **14.5. Environmental hazards:** Not applicable.
· **14.6. Special precautions for user** Not applicable.
· **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Safety & Environment
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

# KLEIBERIT 706.4.50 ME

## Reactive PUR-Hotmelt Adhesive

## Fields of application

- Surface lamination
- Good adhesion to various materials, such as polystyrene, wood, plaster, woven material, wood material, PVC, aluminium and metal plate (dependant upon the material used, pre-treatment could be necessary)
- The long open time allows large surfaces areas to be bonded

## Advantages

- Very high initial strength
- Following cross-linking, a highly warmth-resistant, watertight and extremely cold-resistant bond is attained

## Properties of the adhesive

**Base:** polyurethane
**Density:** approx. 1.1 g/cm³
**Viscosity** (on the day of production**)**
**Brookfield HBTD 10 rpm:**
at 120°C 16,000 ± 4,000 mPa s
at 140°C 8,000 ± 2,000 mPa s

**Identification:** see our safety data sheet

**- ME Product (micro emission)**
**residual monomer content < 0,1 %**

**Attention**
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.

## Application techniques

In order to bond large surface areas with KLEIBERIT 706.4.50 ME, a melting plant can be used with a roller-application plant, suitable for PUR hot melt adhesives.

**Reference value for open time for application on chip boards:** 2 - 5 minutes
for a
**Application quantity**: 100 g/m²
**Application temperature:** 120 - 140 °C
**Room temperature:** 20 °C
Chemical cross linking of PUR hot melts requires moisture. Therefore sufficient air humidity has to be present during processing.

## Application devices

- Tank device with a nitrogen blanket
- Barrel melting plant for 20 litre containers
- Suitable roller-application unit

## Cleaning

Following completion of the work with KLEIBERIT 706.4.50 ME, either run the application empty or drain off the remaining contents. Immediately afterwards apply melted KLEIBERIT 761.8 and reverse the direction of the rollers until the last traces of PUR hot melt have been removed.

Hot melt adhesive which has already cross-linked can only be removed mechanically.





**KLEBCHEMIE M. G. Becker GmbH & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten
Tel.: +49 7244 62-0, Fax: +49 7244 700-0, E-Mail: info@kleiberit.com
**www.kleiberit.com**

# KLEIBERIT 706.4.50 ME

## Packaging

**KLEIBERIT 706.4.50 ME:**

| | |
|---|---|
| Aluminum bag in fiber drum | 2.0 kg net |
| Drum | 190.0 kg net |

**Cleaning Agent**
**KLEIBERIT 761.8:**

| | |
|---|---|
| Plastic pail | 20.0 kg net |
| Fibre drum | 136.0 kg net |

Additional packaging sizes upon request

## Storage

KLEIBERIT 706.4.50 ME can be stored in factory sealed containers for approx. 12 months.

Protect from humidity!

Version 21.10.2022 gt, replaces previous versions



**Adhesives and Waste Disposal**

**Waste Code 080409**
**080410 - Adhesive fully cured**

Our containers are made of recyclable material. Well drained containers can be recycled.

**Service**
Our application department may be consulted at any time without obligation. The statements made herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service which is rendered free of charge and without obligation.



**KLEBCHEMIE M. G. Becker GmbH & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten
Tel.: +49 7244 62-0, Fax: +49 7244 700-0, E-Mail: info@kleiberit.com
**www.kleiberit.com**

KLEIBERIT ADHESIVES • COATINGS

# KLEIBERIT 706.7.50 ME

## Reactive PUR Hotmelt Adhesive

## Fields of application

- Surface laminating
- Good adhesion to various materials, such as wood, wood based material, PMMA, PC, GRP, aluminum and metal plate (dependent upon the material used, pre-treatment could be necessary)
- The long open time allows large surfaces areas to be bonded

## Advantages

- Excellent suitability for bonding impermeable substrates to each other
- Following cross-linking, a highly warmth-resistant, watertight and extremely cold-resistant bond is attained

## Properties of the adhesive

**Base:** polyurethane
**Specific weight:** approx. 1.1 g/cm³
**Viscosity** (on the day of production)
**Brookfield HBTD 10 rpm:**
at 120 °C 16,000 ± 4,000 mPa s
at 140 °C 7,000 ± 2,000 mPa s

**Identification:** see our safety data sheet

**- ME-Product (Micro-Emission),**
**residual monomer content <0.1%**

### Attention

When hotmelt adhesives are melted and applied, vapors are set free and an unpleasant odor can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapors, e.g. by using a suitable ventilation system.

## Application techniques

In order to bond large surface areas with KLEIBERIT 706.7.50 ME a melting plant can be used with a roller-application plant, suitable for PUR hotmelt adhesives.

Climatize substrate to room temp. before processing. The following parameters are the minimum requirements for processing:

Room climate: from 20°C/40% RH
Substrate temp: from 20°C
Adhesive application temp: 120 – 140°C
Adhesive application qty:
from 80 g/m² for laminate
from 50 g/m² for foils

Open time under named conditions: up to 5 minutes

In general, the optimal conditions for the respective applications must be determined on-site by the user with preliminary testing, documentation and continuous control.
Chemical cross linking of PUR hotmelts requires moisture. Therefore sufficient air humidity has to be present during processing.

## Application devices

- Tank device with a nitrogen blanket
- Barrel melting plant for 20 liter containers
- Suitable roller-application plant

## Cleaning

Following completion of the work with KLEIBERIT 706.7.50 ME either run the application empty or drain off the remaining contents. Immediately afterwards apply melted Cleaning Agent KLEIBERIT 761.8 and reverse the direction of the rollers until the last traces of PUR hotmelt have been removed. Hotmelt adhesive which has already cross-linked can only be removed mechanically.





**KLEBCHEMIE M. G. Becker GmbH & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten
Tel.: +49 7244 62-0, Fax: +49 7244 700-0, E-Mail: info@kleiberit.com
**www.kleiberit.com**

# KLEIBERIT 706.7.50 ME

## Packaging

**KLEIBERIT 706.7.50 ME**
aluminum bag in fiber drums, 20 kg
metal drum, 50 kg net
metal drum, 190 kg net

**Cleaning Agent**
**KLEIBERIT 761.8:**
plastic pail, 20.0 kg net
fiber drum, 136 kg net

Additional packaging sizes available upon request.

## Storage

KLEIBERIT 706.7.50 ME can be stored in factory sealed containers for approx. 12 months

Protect from humidity!

Version 04/08/2022 lz; replaces previous version



**Waste Disposal**
Disposal of contents and/or containers should comply with all applicable federal, state and local regulations.
Our containers are made of recyclable material.

**Service**
Our application department may be consulted at any time without obligation. The statements made herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service which is rendered free of charge and without obligation.



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Tel.: +49 7244 62-0, Fax: +49 7244 700-0, E-Mail: info@kleiberit.com
**www.kleiberit.com**

KLEIBERIT® ADHESIVES • COATINGS

# KLEIBERIT 711.9.50 - ME

## Reactive PUR Hotmelt Adhesive

## Fields of application

- Very good adhesion to wood, wood based materials, foam, polystyrene, HPL, aluminium and metal (dependant upon the material used, pre-treatment could be necessary)
- The long open time allows large surfaces areas to be bonded

## Advantages

- Following cross-linking, a highly heat resistant, watertight, extremely cold resistant and highly durable bond is attained
- Long open time
- Very high green strength
- Excellent flowing properties for roller application
- High resistance to creeping

## Properties of the adhesive

**Base:** polyurethane
**Specific weight:** approx. 1,1 g/cm³

**Viscosity** (on the day of production)
**Brookfield HBTD 10 rpm:**
at 160 °C: 16,000 ± 4,000 mPa.s
at 180 °C: 8,000 ± 2,000 mPa.s

**Identification:** see our safety data sheet

ME product (micro-emission),
Residual monomer content <0.1%

When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.

## Application techniques

For surface lamination, KLEIBERIT 711.9.50 - ME is processed with melting equipment (suitable for PUR hotmelt adhesives) on a roller coater application unit.

Climatise substrate to room temp. before processing. The following parameters are the minimum requirements for processing:

Room climate: from 20 °C/40 % RH
Substrate temp: from 20°C
Adhesive melting temp: 160 – 165 °C
Adhesive application temp: 140 – 160 °C
Adhesive application qty:
from 80 g/m² for laminate
from 50 g/m² for foils

Open time under named conditions:
up to 5 minutes

In general, the optimal conditions for the respective applications must be determined on-site by the user with preliminary testing, documentation and continuous control.
Chemical cross linking of PUR hotmelts requires moisture. Therefore sufficient air humidity has to be present during processing.

## Application devices

- Tank device with a nitrogen blanket
- Barrel melting plant for 20 and 200 litre containers
- Suitable roller application systems

## Cleaning

Following completion of the work with KLEIBERIT 711.9.50 - ME, either run the application empty or drain off the remaining contents. Immediately afterwards apply melted KLEIBERIT 761.8 and reverse the direction of the rollers until the last traces of PUR Hotmelt have been removed. Hotmelt adhesive which has already cross-linked can only be removed mechanically.





**KLEIBERIT SE & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten/Germany
Phone: +49 7244 62-0, Fax: +49 7244 700-0
Email: info@kleiberit.com, **www.kleiberit.com**

# KLEIBERIT 711.9.50 - ME

## Packaging

**KLEIBERIT 711.9.50 - ME:**
Pouch pack, 1.8 kg net
metal drum, 190.0 kg net

**Cleaning Agent**
**KLEIBERIT 761.8:**
plastic pail, 20.0 kg net
fibre drum, 136 kg net

Additional packaging sizes available upon request.

## Storage

KLEIBERIT 711.9.50 - ME can be stored in factory sealed containers for approx. 12 months

Protect from humidity!

Version 17/08/2022 ga; replaces previous versions



**Waste Disposal**
Disposal of contents and/or containers should comply with all applicable federal, state and local regulations.
Our containers are made of recyclable material.

**Service**
Our application department may be consulted at any time without obligation. The statements made herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service which is rendered free of charge and without obligation.



**KLEIBERIT SE & Co. KG**, Max-Becker-Str. 4, 76356 Weingarten/Germany
Phone: +49 7244 62-0, Fax: +49 7244 700-0
Email: info@kleiberit.com, **www.kleiberit.com**

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 14.07.2022 Version-No. 1 Revision: 14.07.2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *706.4.50 ME***

· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
**For professionel use only**
· **Application of the substance / the mixture** Adhesives

· **1.3. Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KLEBCHEMIE
M.G. Becker GmbH & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany
· **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
· **1.4. Emergency telephone number: +44 1235 239670** European regional number (European languages)

## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
Safety data sheet available on request.
Contains isocyanates. May produce an allergic reaction.
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

· **3.1. Substances**
· **Registry-No's Identification / Classification GHS-CLP**

polymer of polyether polyester polyol and diphenylmethane diisocyanate >95%
· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

*(Contd. on page 2)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 14.07.2022 Version-No. 1 Revision: 14.07.2022

**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

*(Contd. of page 1)*

· **Dangerous components:**

| · Registry-No's | Identification / Classification GHS-CLP | % |
|---|---|---|
| CAS: 101-68-8<br>Reg.nr.: 01-2119457014-47-XXXX | diphenylmethane-4,4'-diisocyanate<br>Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204<br>Specific concentration limits: Skin Irrit. 2; H315: C ≥ 5 %<br>Eye Irrit. 2; H319: C ≥ 5 %<br>Resp. Sens. 1; H334: C ≥ 0.1 %<br>STOT SE 3; C ≥ 5 % | <0.1% |

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
After contact with the molten product, cool rapidly with cold water.
Rinse with warm water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth with plenty of water.
Seek medical treatment.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Isocyanates
Nitrogen oxides (NOx)
Traces: Hydrogen cyanide (HCN)
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.

*(Contd. on page 3)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 14.07.2022 Version-No. 1 Revision: 14.07.2022

**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

*(Contd. of page 2)*

· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.
· **Further information about storage conditions:** Protect from humidity and water.
· **7.3. Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

· **Ingredients with biological limit values:**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
BGW (Germany) 10 µg/g Kreatinin
Untersuchungsmaterial: Urin
Probennahmezeitpunkt: Expositionsende bzw. Schichtende
Parameter: 4.4'-Diaminodiphenylmethan

· **CAS No. Designation of material % Type Value Unit**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
AGW (Germany) Long-term value: 0.05 E mg/m³
1;=2=(I);DFG, 11, 12, H, Sah, Y

· **8.2. Exposure controls** 8 hours
· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Not necessary if room is well-ventilated.
· **Hand protection**
Protective gloves
Heat resistant gloves
· **Material of gloves**
Leather gloves
Synthetic rubber gloves
· **Eye/face protection** Safety glasses
· **Body protection:** Protective work clothing
· **Thermal hazards** Risk of burns during thermal processing.

*(Contd. on page 4)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

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**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

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## SECTION 9: Physical and chemical properties

| | |
|---|---|
| · **9.1. Information on basic physical and chemical properties** | |
| · **General Information** | |
| · **Physical state** | Solid |
| · **Colour:** | According to product specification |
| · **Odour:** | Light |
| · **Odour threshold:** | Not determined. |
| · **Melting point/freezing point:** | Undetermined. |
| · **Boiling point or initial boiling point and boiling range** | Undetermined. |
| · **Flammability** | Not determined. |
| · **Lower and upper explosion limit** | |
| · **Lower:** | Not determined. |
| · **Upper:** | Not determined. |
| · **Flash point:** | Not applicable. |
| · **Ignition temperature:** | >300 °C |
| · **Decomposition temperature:** | Not determined. |
| · **pH** | Not applicable. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Kinematic viscosity** | Not applicable. |
| · **Dynamic:** | Not applicable. |
| · **Solubility** | |
| · **water:** | Insoluble. |
| · **Partition coefficient n-octanol/water (log value)** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density and/or relative density** | |
| · **Density at 20 °C:** | ca. 1.1 g/cm³ |
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |
| · **Particle characteristics** | See item 3. |
| · **9.2. Other information** | |
| · **Appearance:** | |
| · **Form:** | Solid |
| · **Important information on protection of health and environment, and on safety.** | |
| · **Auto-ignition temperature:** | Product is not selfigniting. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Change in condition** | |
| · **Evaporation rate** | Not applicable. |
| · **Information with regard to physical hazard classes** | |
| · **Explosives** | Void |
| · **Flammable gases** | Void |
| · **Aerosols** | Void |
| · **Oxidising gases** | Void |
| · **Gases under pressure** | Void |
| · **Flammable liquids** | Void |
| · **Flammable solids** | Void |
| · **Self-reactive substances and mixtures** | Void |

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# Safety data sheet
## according to 1907/2006/EC, Article 31

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**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

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| | |
|---|---|
| · **Pyrophoric liquids** | Void |
| · **Pyrophoric solids** | Void |
| · **Self-heating substances and mixtures** | Void |
| · **Substances and mixtures, which emit flammable gases in contact with water** | Void |
| · **Oxidising liquids** | Void |
| · **Oxidising solids** | Void |
| · **Organic peroxides** | Void |
| · **Corrosive to metals** | Void |
| · **Desensitised explosives** | Void |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.
· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** Isocyanates
· **Additional information:**
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.
Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

## SECTION 11: Toxicological information

· **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.
· **11.2 Information on other hazards**
· **Endocrine disrupting properties**

None of the ingredients is listed.

*(Contd. on page 6)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

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**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

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## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2. Persistence and degradability** No further relevant information available.

· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.6. Other adverse effects**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **Additional ecological information:**
· **General notes:**
Not known to be hazardous to water.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation** Can be disposed of with household garbage in small quantities after curing.
· **European waste catalogue**
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09
· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN number or ID number**
· **ADR, IMDG, IATA** Void
· **14.2. UN proper shipping name**
· **DOT, ADR, IMDG, IATA** Void
· **14.3. Transport hazard class(es)**
· **Class** Void
· **14.4. Packing group**
· **ADR, IMDG, IATA** Void
· **14.5. Environmental hazards:** Not applicable.
· **14.6. Special precautions for user** Not applicable.
· **14.7. Maritime transport in bulk according to IMO instruments** Not applicable.

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# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 14.07.2022 Version-No. 1 Revision: 14.07.2022

**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

*(Contd. of page 6)*

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **Directive 2012/18/EU - Seveso-III:**
· **Named dangerous substances - ANNEX I** None of the ingredients is included.
· **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 3
· **Regulation (EU) No 649/2012**

None of the ingredients is listed.
· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.
· **REGULATION (EU) 2019/1148**
· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.
· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.
· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.
· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **National regulations:**

· **D: Waterhazard class** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
EUH204 Contains isocyanates. May produce an allergic reaction.

· **Department issuing SDS:** Safety & Environment

*(Contd. on page 8)*

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 14.07.2022 Version-No. 1 Revision: 14.07.2022

**Trade name / Article-No: KLEIBERIT *706.4.50 ME***

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· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 08.07.2022 Version-No. 1 Revision: 08.07.2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *706.7.50 ME***

· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
**For professionel use only**
· **Application of the substance / the mixture** Adhesives

· **1.3. Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KLEBCHEMIE
M.G. Becker GmbH & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany
· **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
· **1.4. Emergency telephone number: +44 1235 239670** European regional number (European languages)

## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
Safety data sheet available on request.
Contains isocyanates. May produce an allergic reaction.
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

| · Registry-No's | Identification / Classification GHS-CLP | % |
|---|---|---|
| CAS: 101-68-8<br>Reg.nr.: 01-2119457014-47-XXXX | diphenylmethane-4,4'-diisocyanate<br>Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204<br>Specific concentration limits: Skin Irrit. 2; H315: C ≥ 5 %<br>Eye Irrit. 2; H319: C ≥ 5 %<br>Resp. Sens. 1; H334: C ≥ 0.1 %<br>STOT SE 3; C ≥ 5 % | <0.1% |

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· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
After contact with the molten product, cool rapidly with cold water.
Rinse with warm water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth with plenty of water.
Seek medical treatment.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Isocyanates
Nitrogen oxides (NOx)
Traces: Hydrogen cyanide (HCN)
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.
· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.

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· **Further information about storage conditions:** Protect from humidity and water.
· **7.3. Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**
· **DNELs**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
Dermal DNEL short term 50 mg/kg (human being)
Inhalative DNEL short term 0.1 mg/m3 (human being)
DNEL long term 0.05 mg/m3 (human being)
· **PNECs**

**101-68-8 diphenylmethane-4,4'-diisocyanate**

| | |
|---|---|
| PNEC- Freshwater | 1 mg/l (not specified) |
| PNEC-seawater | 0.1 mg/l (not specified) |
| PNEC-periodic release | 10 mg/l (not specified) |
| PNEC-Freshwater sediment | 1 mg/kg (not specified) |
| PNEC-soil | 1 mg/kg (not specified) |
| PNEC-wastewater treatment plant | 1 mg/l (not specified) |

· **Ingredients with biological limit values:**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
BGW (Germany) 10 µg/g Kreatinin
Untersuchungsmaterial: Urin
Probennahmezeitpunkt: Expositionsende bzw. Schichtende
Parameter: 4.4'-Diaminodiphenylmethan

· **CAS No. Designation of material % Type Value Unit**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
AGW (Germany) Long-term value: 0.05 E mg/m³
1;=2=(I);DFG, 11, 12, H, Sah, Y

· **8.2. Exposure controls** 8 hours
· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Not necessary if room is well-ventilated.
· **Hand protection**
Protective gloves
Heat resistant gloves
· **Material of gloves**
Leather gloves
Synthetic rubber gloves
· **Eye/face protection** Safety glasses

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· **Body protection:** Protective work clothing
· **Thermal hazards** Risk of burns during thermal processing.

## SECTION 9: Physical and chemical properties

· **9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| · **General Information** | |
| · **Physical state** | Solid |
| · **Colour:** | White |
| · **Odour:** | Uncharacteristic. |
| · **Odour threshold:** | Not determined. |
| · **Melting point/freezing point:** | Undetermined. |
| · **Boiling point or initial boiling point and boiling range** | Undetermined. |
| · **Flammability** | Not determined. |
| · **Lower and upper explosion limit** | |
| · **Lower:** | Not determined. |
| · **Upper:** | Not determined. |
| · **Flash point:** | Not applicable. |
| · **Ignition temperature:** | >300 °C |
| · **Decomposition temperature:** | Not determined. |
| · **pH** | Not applicable. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Kinematic viscosity** | Not applicable. |
| · **Dynamic:** | Not applicable. |
| · **Solubility** | |
| · **water:** | Insoluble. |
| · **Partition coefficient n-octanol/water (log value)** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density and/or relative density** | |
| · **Density at 20 °C:** | ca. 1.1 g/cm³ |
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |
| · **Particle characteristics** | See item 3. |

· **9.2. Other information**

| | |
|---|---|
| · **Appearance:** | |
| · **Form:** | Solid |
| · **Important information on protection of health and environment, and on safety.** | |
| · **Auto-ignition temperature:** | Product is not selfigniting. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Change in condition** | |
| · **Evaporation rate** | Not applicable. |

· **Information with regard to physical hazard classes**

| | |
|---|---|
| · **Explosives** | Void |
| · **Flammable gases** | Void |
| · **Aerosols** | Void |
| · **Oxidising gases** | Void |
| · **Gases under pressure** | Void |

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| | |
|---|---|
| · **Flammable liquids** | Void |
| · **Flammable solids** | Void |
| · **Self-reactive substances and mixtures** | Void |
| · **Pyrophoric liquids** | Void |
| · **Pyrophoric solids** | Void |
| · **Self-heating substances and mixtures** | Void |
| · **Substances and mixtures, which emit flammable gases in contact with water** | Void |
| · **Oxidising liquids** | Void |
| · **Oxidising solids** | Void |
| · **Organic peroxides** | Void |
| · **Corrosive to metals** | Void |
| · **Desensitised explosives** | Void |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.
· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** Isocyanates
· **Additional information:**
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.
Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

## SECTION 11: Toxicological information

· **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **LD/LC$_{50}$ values relevant for classification:**

**101-68-8 diphenylmethane-4,4'-diisocyanate**

| | | |
|---|---|---|
| Oral | $LD_{50}$ | >2,000 mg/kg (rat) (84/449/EWG, B.1) |
| Dermal | $LD_{50}$ | >9,400 mg/kg (rabbit) (OECD 402) |

Inhalative $LC_{50}$ /4 h 1.5 mg/l (not specified) (Calculation (ATE))
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.

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· **Aspiration hazard** Based on available data, the classification criteria are not met.
· **11.2 Information on other hazards**
· **Endocrine disrupting properties**

None of the ingredients is listed.

## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:**

**101-68-8 diphenylmethane-4,4'-diisocyanate**
$LC_{50}$ >1,000 mg / l / 96h (fish)
$EC_{50}$ >1,000 mg / l / 24h (water flea - daphnia)
$IC_{50}$ >1,640 mg / l / 72h (algae)
· **12.2. Persistence and degradability** No further relevant information available.

· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.6. Other adverse effects**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **Additional ecological information:**
· **General notes:**
Not known to be hazardous to water.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation** Can be disposed of with household garbage in small quantities after curing.
· **European waste catalogue**
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09
· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN number or ID number**
· **ADR, IMDG, IATA** Void
· **14.2. UN proper shipping name**
· **DOT, ADR, IMDG, IATA** Void

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· **14.3. Transport hazard class(es)**
· **Class** Void
· **14.4. Packing group**
· **ADR, IMDG, IATA** Void
· **14.5. Environmental hazards:** Not applicable.
· **14.6. Special precautions for user** Not applicable.
· **14.7. Maritime transport in bulk according to IMO instruments** Not applicable.

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **Directive 2012/18/EU - Seveso-III:**
· **Named dangerous substances - ANNEX I** None of the ingredients is included.
· **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 3
· **Regulation (EU) No 649/2012**

None of the ingredients is listed.
· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.
· **REGULATION (EU) 2019/1148**
· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.
· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.
· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.
· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **National regulations:**

· **D: Waterhazard class** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

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H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
EUH204 Contains isocyanates. May produce an allergic reaction.

· **Department issuing SDS:** Safety & Environment
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

# Safety data sheet

**according to Regulation (EC) No. 1907/2006 as amended from time to time**

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *711.9.50 ME***

· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Adhesives

· **1.3. Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KLEIBERIT SE & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany
· **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
· **1.4. Emergency telephone number:**
**+44 1235 239670** European regional number (European languages)
**112** Emergency telephone number for Malta
**543 22 22** Icelandic University Hospital

## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
Contains isocyanates. May produce an allergic reaction.
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

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· **Dangerous components:**

| · Registry-No's | Identification / Classification GHS-CLP | % |
|---|---|---|
| CAS: 5873-54-1<br>Reg.nr.: 01-2119480143-45-XXXX | diphenylmethane-2,4'-diisocyanate<br>Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204<br>Specific concentration limits: Skin Irrit. 2; H315: C ≥ 5 %<br>Eye Irrit. 2; H319: C ≥ 5 %<br>Resp. Sens. 1; H334: C ≥ 0.1 %<br>STOT SE 3; C ≥ 5 % | <0.1% |

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Treat affected skin with cotton wool or cellulose. Then wash and rinse thoroughly with water and a mild cleaning agent.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Call for a doctor immediately.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.
· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.
· **Further information about storage conditions:** None.
· **7.3. Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**
· **DNELs**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**
Dermal DNEL short term 50 mg/kg (human being)
Inhalative DNEL short term 0.1 mg/m3 (human being)
DNEL long term 0.05 mg/m3 (human being)

· **PNECs**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**

| | |
|---|---|
| PNEC- Freshwater | 1 mg/l (not specified) |
| PNEC-seawater | 0.1 mg/l (not specified) |
| PNEC-soil | 1 mg/kg (not specified) |
| PNEC-wastewater treatment plant | 1 mg/l (not specified) |

· **CAS No. Designation of material % Type Value Unit**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**
AGW (Germany) Long-term value: 0.05 mg/m³
1;=2=(I);AGS, 11, 12

· **8.2. Exposure controls**
limit the exposure to:
8 hours
· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Filter A/P2 (EN 14387)
· **Hand protection**
Protective gloves
Heat resistant gloves
· **Material of gloves** Leather gloves
· **Eye/face protection** Safety glasses
· **Body protection:** Protective work clothing

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· **Thermal hazards** Risk of burns during thermal processing.

## SECTION 9: Physical and chemical properties

| | |
|---|---|
| · **9.1. Information on basic physical and chemical properties** | |
| · **General Information** | |
| · **Physical state** | Solid |
| · **Colour:** | According to product specification |
| · **Odour:** | Light |
| · **Odour threshold:** | Not determined. |
| · **Melting point/freezing point:** | Undetermined. |
| · **Boiling point or initial boiling point and boiling range** | Undetermined. |
| · **Flammability** | Not determined. |
| · **Lower and upper explosion limit** | |
| · **Lower:** | Not determined. |
| · **Upper:** | Not determined. |
| · **Flash point:** | Not applicable. |
| · **Ignition temperature:** | Not applicable. |
| · **Decomposition temperature:** | Not determined. |
| · **pH** | Not applicable. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Kinematic viscosity** | Not applicable. |
| · **Dynamic:** | Not applicable. |
| · **Solubility** | |
| · **water:** | Insoluble. |
| · **Partition coefficient n-octanol/water (log value)** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density and/or relative density** | |
| · **Density at 20 °C:** | ca. 1.1 g/cm³ |
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |
| · **Particle characteristics** | See item 3. |
| · **9.2. Other information** | |
| · **Appearance:** | |
| · **Form:** | Solid |
| · **Important information on protection of health and environment, and on safety.** | |
| · **Auto-ignition temperature:** | Product is not selfigniting. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Change in condition** | |
| · **Evaporation rate** | Not applicable. |
| · **Information with regard to physical hazard classes** | |
| · **Explosives** | Void |
| · **Flammable gases** | Void |
| · **Aerosols** | Void |
| · **Oxidising gases** | Void |
| · **Gases under pressure** | Void |

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| | |
|---|---|
| · **Flammable liquids** | Void |
| · **Flammable solids** | Void |
| · **Self-reactive substances and mixtures** | Void |
| · **Pyrophoric liquids** | Void |
| · **Pyrophoric solids** | Void |
| · **Self-heating substances and mixtures** | Void |
| · **Substances and mixtures, which emit flammable gases in contact with water** | Void |
| · **Oxidising liquids** | Void |
| · **Oxidising solids** | Void |
| · **Organic peroxides** | Void |
| · **Corrosive to metals** | Void |
| · **Desensitised explosives** | Void |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.
· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** No dangerous decomposition products known.
· **Additional information:**
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.
Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

## SECTION 11: Toxicological information

· **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **$LD/LC_{50}$ values relevant for classification:**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**

| | | |
|---|---|---|
| Oral | $LD_{50}$ | >2,000 mg/kg (rat) (84/449/EWG, B.1) |
| Dermal | $LD_{50}$ | >9,400 mg/kg (rabbit) (OECD 402) |

Inhalative $LC_{50}$ /4 h 1.5 mg/l (rat) (Calculation (ATE))
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.

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# Safety data sheet

**according to Regulation (EC) No. 1907/2006 as amended from time to time**

Printing date 06.02.2023 Version-No. 1 Revision: 06.02.2023

**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.
· **11.2 Information on other hazards**
· **Endocrine disrupting properties**

None of the ingredients is listed.

## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:**
**5873-54-1 diphenylmethane-2,4'-diisocyanate**
$LC_{50}$ >1,000 mg / l / 96h (Zebrafish - Danio rerio)
$EC_{50}$ >1,000 mg / l / 24h (water flea - daphnia)
$IC_{50}$ >1,640 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)
· **12.2. Persistence and degradability** No further relevant information available.
· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **Additional ecological information:**
· **General notes:** Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
· **European waste catalogue**
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09
· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN number or ID number**
· **ADR, IMDG, IATA** Void

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# Safety data sheet

**according to Regulation (EC) No. 1907/2006 as amended from time to time**

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| | |
|---|---|
| · **14.2. UN proper shipping name** | |
| · **DOT, ADR, IMDG, IATA** | Void |
| · **14.3. Transport hazard class(es)** | |
| · **Class** | Void |
| · **14.4. Packing group** | |
| · **ADR, IMDG, IATA** | Void |
| · **14.5. Environmental hazards:** | Not applicable. |
| · **14.6. Special precautions for user** | Not applicable. |
| · **14.7. Maritime transport in bulk according to IMO instruments** | Not applicable. |

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **Directive 2012/18/EU - Seveso-III:**
· **Named dangerous substances - ANNEX I** None of the ingredients is included.
· **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 56, 74
· **Regulation (EU) No 649/2012**

None of the ingredients is listed.
· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.
· **REGULATION (EU) 2019/1148**
· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.
· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.
· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.
· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **National regulations:**

· **D: Waterhazard class** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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# Safety data sheet

**according to Regulation (EC) No. 1907/2006 as amended from time to time**

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· **Relevant phrases**

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
EUH204 Contains isocyanates. May produce an allergic reaction.

· **Department issuing SDS:** Safety & Environment

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

# Safety data sheet

## according to the Globally Harmonized System

Printing date 06.02.2023 Version-No. 1 Revision: 06.02.2023

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1. Product identifier**

· **Trade name / Article-No: KLEIBERIT *711.9.50 ME***

· **1.2. Relevant identified uses of the substance / mixture or uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Adhesives

· **1.3. Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KLEIBERIT SE & Co. KG
Max-Becker-Str. 4
D - 76356 Weingarten / Baden
Germany
· **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
· **1.4. Emergency telephone number:**
**+44 1235 239670**
European regional number (European languages)
**+44 1235 239671**
Middle Eastern/African regional number (Middle Eastern/African languages)
**+1 215 207 0061**
Americas regional number (English, Spanish, Portuguese)
**+65 3158 1412**
Asia Pacific regional number (English, Bahasa, Malaysia, Hindi, Japanese, Korean, Mandarin, Tagalog)
**+973 1619 8321**
Bahrain/Middle East (English, Arabic, French, Farsi )

## SECTION 2: Hazards identification

· **2.1. Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
The product is not classified as hazardous to health or environment according to the CLP regulation.

· **2.2. Label elements**
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **2.3. Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

· **Registry-No's** **Identification / Classification GHS-CLP** Void **%**

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# Safety data sheet
## according to the Globally Harmonized System

Printing date 06.02.2023 Version-No. 1 Revision: 06.02.2023

**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

· **4.1. Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Treat affected skin with cotton wool or cellulose. Then wash and rinse thoroughly with water and a mild cleaning agent.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Call for a doctor immediately.
· **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1. Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3. Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

· **6.1. Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2. Environmental precautions:** No special measures required.
· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.
· **6.4. Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## SECTION 7: Handling and storage

· **7.1. Precautions for safe handling** Prevent formation of dust.

· **7.2. Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
· **Information about storage in one common storage facility:** Observe the national regulations.
· **Further information about storage conditions:** None.
· **7.3. Specific end use(s)** No further relevant information available.

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# Safety data sheet
## according to the Globally Harmonized System

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**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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## SECTION 8: Exposure controls/personal protection

· **8.1. Control parameters**
· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.2. Exposure controls**
limit the exposure to:
8 hours

· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Filter A/P2 (EN 14387)
· **Protection of hands:**
Protective gloves
Heat resistant gloves
· **Material of gloves** Leather gloves
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing
· **Thermal hazards** Risk of burns during thermal processing.

## SECTION 9: Physical and chemical properties

· **9.1. Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

| | |
|---|---|
| **Form:** | Solid |
| **Colour:** | According to product specification |
| · **Odour:** | Light |
| · **Odour threshold:** | Not determined. |
| · **pH-value:** | Not applicable. |
| · **Change in condition** | |
| **Melting point/freezing point:** | Undetermined. |
| **Initial boiling point and boiling range:** | Undetermined. |
| · **Flash point:** | Not applicable. |
| · **Flammability (solid, gas):** | Not determined. |
| · **Ignition temperature:** | Not applicable. |
| · **Decomposition temperature:** | Not determined. |
| · **Auto-ignition temperature:** | Product is not selfigniting. |
| · **Explosive properties:** | Product does not present an explosion hazard. |
| · **Explosion limits:** | |
| **Lower:** | Not determined. |
| **Upper:** | Not determined. |
| · **Vapour pressure:** | Not applicable. |
| · **Density at 20 °C:** | ca. 1.1 g/cm³ |

*(Contd. on page 4)*

# Safety data sheet
## according to the Globally Harmonized System

Printing date 06.02.2023 Version-No. 1 Revision: 06.02.2023

**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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| | |
|---|---|
| · **Relative density** | Not determined. |
| · **Vapour density** | Not applicable. |
| · **Evaporation rate** | Not applicable. |
| · **Solubility in / Miscibility with water:** | Insoluble. |
| · **Partition coefficient: n-octanol/water:** | Not determined. |
| · **Viscosity:** | At room temperature: not applicable |
| · **Dynamic:** | Not applicable. |
| · **Kinematic:** | Not applicable. |
| · **9.2. Other information** | No further relevant information available. |

## SECTION 10: Stability and reactivity

· **10.1. Reactivity**
see item 10.3
No further relevant information available.
· **10.2. Chemical stability** Stable when stored and used properly.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3. Possibility of hazardous reactions** No dangerous reactions known.
· **10.4. Conditions to avoid** No further relevant information available.
· **10.5. Incompatible materials:** No further relevant information available.
· **10.6. Hazardous decomposition products:** No dangerous decomposition products known.
· **Additional information:**
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.
Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

## SECTION 11: Toxicological information

· **11.1. Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **LD/$LC_{50}$ values relevant for classification:**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**

| | | |
|---|---|---|
| Oral | $LD_{50}$ | >2,000 mg/kg (rat) (84/449/EWG, B.1) |
| Dermal | $LD_{50}$ | >9,400 mg/kg (rabbit) (OECD 402) |
| Inhalative | $LC_{50}$ /4 h | 1.5 mg/l (rat) (Calculation (ATE)) |

· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Additional toxicological information:**
· **Repeated dose toxicity**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.

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# Safety data sheet
## according to the Globally Harmonized System

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**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

· **12.1. Toxicity**
· **Aquatic toxicity:**

**5873-54-1 diphenylmethane-2,4'-diisocyanate**

$LC_{50}$ >1,000 mg / l / 96h (Zebrafish - Danio rerio)

$EC_{50}$ >1,000 mg / l / 24h (water flea - daphnia)

$IC_{50}$ >1,640 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)

· **12.2. Persistence and degradability** No further relevant information available.
· **12.3. Bioaccumulative potential** No further relevant information available.
· **12.4. Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Behaviour in sewage processing plants:**
· **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
· **12.5. Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.7 Other adverse effects** No further relevant information available.

## SECTION 13: Disposal considerations

· **13.1. Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
· **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

## SECTION 14: Transport information

· **14.1. UN-Number**
· **ADR, IMDG, IATA** Void
· **14.2. UN proper shipping name**
· **ADR, IMDG, IATA** Void
· **14.3. Transport hazard class(es)**
· **Class** Void
· **14.4. Packing group**
· **ADR, IMDG, IATA** Void
· **14.5. Environmental hazards:** Not applicable.
· **14.6. Special precautions for user** Not applicable.

*(Contd. on page 6)*

# Safety data sheet
## according to the Globally Harmonized System

Printing date 06.02.2023 Version-No. 1 Revision: 06.02.2023

**Trade name / Article-No: KLEIBERIT *711.9.50 ME***

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· **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

## SECTION 15: Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Safety & Environment
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

# 1. Product and company identification

## Product identifier

Trade name: Styrolution® PS GPPS

This safety data sheet pertains to the following products:
Styrolution PS 1200
Styrolution PS 1201
Styrolution PS 1231
Styrolution PS 1270
Styrolution PS 1290
Styrolution PS 1291
Styrolution PS 1300
Styrolution PS 1301
Styrolution PS 1600
Styrolution PS 1611
Styrolution PS 1621
Styrolution PS 1700
Styrolution PS 1900
Styrolution PS 2600
Styrolution PS 2601
Styrolution PS 2610
Styrolution PS 3100
Styrolution PS 3101
Styrolution PS 3190
Styrolution PS 3191
Styrolution PS 3600
Styrolution PS 3601
GPPS Generic
GPPS Off-Specification

## Relevant identified uses of the substance or mixture and uses advised against

General use: Polymer
Basic material for chemical industry processing

## Details of the supplier of the safety data sheet

Company name: INEOS Styrolution America LLC
Street/POB-No.: 4245 Meridian Parkway, Suite 151
Postal Code, city: Aurora IL 60504, US
WWW: www.styrolution.com
E-mail: INSTY.americas@ineos.com
Telephone: +1 866 - 890 - 6353
Telefax: +1 866 - 890 - 6362

Department responsible for information:
Infopoint, Telephone: +1 866 - 890 - 6353
E-mail: INSTY.americas@ineos.com

## Emergency phone number

**CHEMTREC**
**Telephone: 1 - 800 - 424 - 9300 (24 h)**
**(collect calls accepted)**

## 2. Hazards identification

### Emergency overview

Appearance: Physical state at 68 °F and 101.3 kPa: solid
Form: granulate
Color: colorless

Odor: weak

Classification: This substance is classified as not hazardous.

### Regulatory status

This material is not considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Hazards not otherwise classified

Dust: Can cause skin, eye and respiratory tract irritation.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
The melted product can cause severe burns.
see section 11: Toxicological information

## 3. Composition / Information on ingredients

Chemical characterization: polymer
(C8 H8) *n
styrene-homopolymer, GPPS

CAS-Number: 9003-53-6

RTECS-Number: WL6475000

Additional information: The product does not contain dangerous substances above limits that need to be mentioned in this section according to applicable legislation.

## 4. First aid measures

In case of inhalation: Provide fresh air. Put victim at rest and keep warm.

Following skin contact: The melted product can cause severe burns.
Do not remove the product from the skin without medical assistance.
After contact with molten product, cool skin area rapidly with cold water. Consult physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart.
Remove contact lenses, if present and easy to do. Continue rinsing.
Consult an eye specialist in the event of irritation.

After swallowing: Do not induce vomiting. Rinse mouth with water.
Drink one or two glasses of water.
Never give an unconscious person anything through the mouth.

### Most important symptoms/effects, acute and delayed

Dust: Skin irritation, eye irritations and redness

### Information to physician

Treat symptomatically.

## 5. Fire fighting measures

Flash point/flash point range: Not applicable

Auto-ignition temperature: > 800.6 °F

Suitable extinguishing media: Water spray jet, foam.
Only in case of small fires: dry chemical powder, carbon dioxide, Sand, earth.

Extinguishing media which must not be used for safety reasons:

Full water jet

### Specific hazards arising from the chemical

In case of fire may be liberated: Smoke, styrene-monomer, aldehydes and acids (organic), carbon monoxide and carbon dioxide ($CO_2$).
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus to prevent exposure to poisonous gases that may develop.

Additional information: Cool endangered containers with water jetspray.

## 6. Accidental release measures

Personal precautions: Provide adequate ventilation. Wear personal protection equipment. Do not breathe dust.

Environmental precautions: Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up: Avoid generation of dust. Remove all sources of ignition.
Collect dry and place in appropriate containers for disposal. Subsequent cleaning.

Additional information: Particular danger of slipping on spilled product on the ground.

## 7. Handling and storage

### Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe dust.
In the case of the formation of dust: Withdraw by suction.
Molten material: Avoid contact with the substance.

Precautions against fire and explosion:

Take precautionary measures against static discharges. Keep away from sources of ignition.
Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils.
Avoid open flames.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Dust explosion risk: Class1

### Storage

Requirements for storerooms and containers:

Store in a well-ventilated place. Keep container tightly closed.
Protect against heat /sun rays.

# 8. Exposure controls / personal protection

## Exposure guidelines

Occupational exposure limit values:

| CAS No. | Designation | Type | Limit value |
|---|---|---|---|
| 9003-53-6 | Styrolution® PS GPPS | USA: ACGIH: TWA | 10 mg/m³ (Dust limit value, inhalable fraction) |
| | | USA: ACGIH: TWA | 3 mg/m³ (Dust limit value, respirable fraction) |
| | | USA: OSHA: TWA | 15 mg/m³ (Dust limit value, inhalable fraction) |
| | | USA: OSHA: TWA | 5 mg/m³ (Dust limit value, respirable fraction) |
| 100-42-5 | Styrene | USA: ACGIH: STEL | 20 ppm |
| | | USA: ACGIH: TWA | 10 ppm |
| | | USA: IDLH: TWA | 700 ppm |
| | | USA: NIOSH: STEL | 425 mg/m³; 100 ppm |
| | | USA: NIOSH: TWA | 215 mg/m³; 50 ppm |
| | | USA: OSHA: Ceiling | 200 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift: 600 ppm 5 mins. in any 3 hrs.) |
| | | USA: OSHA: TWA | 100 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift: 600 ppm 5 mins. in any 3 hrs.) |

Biological limit values:

| CAS No. | Designation | Type | Limit value | Parameter | Sampling |
|---|---|---|---|---|---|
| 100-42-5 | Styrene | USA: ACGIH-BEI, urine | 150 mg/g creatinine | Mandelic acid + Phenylglyoxylic acid | end of exposure or end of shift |
| | | USA: ACGIH-BEI, urine | 20 µg/L | Styrene in urine | end of exposure or end of shift |

Additional information: The product contains very low levels of residual monomers and process chemicals (styrene and ethylbenzene) that may be evolved during thermal processing, along with possible decomposition products. As the identity and levels of these impurities evolved will depend upon the processing conditions (temperature etc.) it is the responsibility of the user to determine the adequacy of any protection or safety measures.

## Engineering controls

Provide good ventilation in the work area. Additional controls are not normally necessary when handling the polymer.

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded.
Use of respiratory protection may be necessary during maintenance activities.
See also information in chapter 7, section storage.

## Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Wear suitable protective clothing.

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Protective gloves made of fabric or leather.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

In case of melting: Impervious heat protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Leather
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: In case of dust formation: The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

General hygiene considerations: Do not breathe vapors. Keep away from sources of ignition.
Wash hands before breaks and after work.
In case of dust formation: Particular danger of slipping on spilled product on the ground.

### Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

| | |
|---|---|
| Appearance: | Physical state at 68 °F and 101.3 kPa: solid<br>Form: granulate<br>Color: colorless |
| Odor: | weak |
| Odor threshold: | not available |
| pH: | not applicable |
| Melting point/freezing point: | 221 °F up to 275 °F |
| Initial boiling point and boiling range: | No data available |
| Flash point/flash point range: | Not applicable |
| Evaporation rate: | No data available |
| Flammability: | No data available |
| Explosion limits: | LEL (Lower Explosion Limit): not applicable |
| Vapor pressure: | not applicable |
| Vapor density: | No data available |
| Density: | at 68 °F: approx. 1050 kg/m³ (ISO 1183) |
| Water solubility: | insoluble |
| Partition coefficient: n-octanol/water: | not relevant |
| Auto-ignition temperature: | > 800.6 °F |
| Thermal decomposition: | > 572 °F |
| Viscosity, dynamic: | not applicable |
| Explosive properties: | In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed. |
| Oxidizing characteristics: | not oxidising |
| Bulk density: | approx. 600 kg/m³ |
| Drop point/drop range: | 174.2 °F up to 260.6 °F |
| Additional information: | Molar mass: 10000 - 300000 g/mol |

## 10. Stability and reactivity

Reactivity: No data available

Chemical stability: Product is stable under normal storage conditions.

Possibility of hazardous reactions:
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Conditions to avoid: Avoid open flames.
Avoid dust formation.

Incompatible materials: Strong oxidizing agents, Gasoline, aldehydes, ketone

Hazardous decomposition products:

When greatly overheated, material may release hazardous decomposition products: monomers, hydrocarbons, gases/vapors, cyclic low molecular weight oligomers, carbon monoxide and carbon dioxide.

Thermal decomposition: > 572 °F

## 11. Toxicological information

### Toxicological tests

Acute toxicity:

LD50 Rat, oral: > 2000 mg/kg
LD50 Rabbit, dermal: > 2000 mg/kg

Toxicological effects:

Acute toxicity (oral): Based on available data, the classification criteria are not met. Mild acute toxicity

Acute toxicity (dermal): Based on available data, the classification criteria are not met. Mild acute toxicity

Acute toxicity (inhalative): Based on available data, the classification criteria are not met. Mild acute toxicity. May cause irritations.

Skin corrosion/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Serious eye damage/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Sensitisation to the respiratory tract: Lack of data. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Skin sensitisation: Based on available data, the classification criteria are not met. Not sensitising

Germ cell mutagenicity/Genotoxicity: Lack of data. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Lack of data. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Specific target organ toxicity (repeated exposure): Lack of data. Chronic toxic effects are not expected. The product has not been tested. The statement is derived from products of similar structure or composition.

Aspiration hazard: Lack of data.

### Symptoms

Dust: Skin irritation, eye irritations and redness
The melted product can cause severe burns.

## 12. Ecological information

### Ecotoxicity

Aquatic toxicity: no evidence of aquatic toxicity

Further details: Pellets may accumulate in the digestive systems of birds and aquatic life, causing injury and possible death due to starvation.

### Mobility in soil

Product is not soluble in water.
Substance is heavier than water and sinks.
mobility in soil: low

### Persistence and degradability

Further details: Biodegradation: Product is not readily biodegradable.
Degradation at UV-radiation/sunlight
Environmental half-life period: >=100 days (estimated)

### Additional ecological information

General information: Do not allow to enter into ground-water, surface water or drains.

## 13. Disposal considerations

### Product

Recommendation: With due observance of the regulations laid down by the local authorities, this must be brought to a suitable incineration plant/waste disposal site.

### Package

Recommendation: Dispose of waste according to applicable legislation. Non-contaminated packages may be recycled.

## 14. Transport information

### UN number

ADR/RID, IMDG, IATA-DGR: not applicable

### UN proper shipping name

ADR/RID, IMDG, IATA-DGR: Not restricted

### Transport hazard class(es)

ADR/RID, IMDG, IATA-DGR: not applicable

### Packing group

ADR/RID, IMDG, IATA-DGR: not applicable

### Environmental hazards

Marine pollutant: no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

### USA: Department of Transportation (DOT)

Proper shipping name: Not restricted

### Sea transport (IMDG)

Proper shipping name: Not restricted
Marine pollutant: no

### Air transport (IATA)

Proper shipping name: Not restricted

### Further information

No dangerous good in sense of these transport regulations.

## 15. Regulatory information

**National regulations - U.S. Federal Regulations**

Product:
TSCA Inventory: listed; EPA flags XU
TSCA HPVC: not listed

Styrene:
TSCA Inventory: listed
TSCA HPVC: not listed
Carcinogen Status:
IARC Rating: Group 2A
OSHA Carcinogen: not listed
NTP Rating: listed
Clean Air Act:
Hazardous Air Pollutants: yes
SOCMI Chemical: yes
Clean Water Act:
Hazardous Substances: RQ 1000 lbs.
Other Environmental Laws:
CERCLA: RQ 1000 lbs.
RCRA Groundwater Monitoring: Methods 8020, 8240 / PQL 1, 5
SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0571

**National regulations - U.S. State Regulations**

California Proposition 65:
THIS PRODUCT(S) CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

**National regulations - Canada**

All ingredients of this product are listed on the DSL Domestic Substances List, or are not required to be listed on the DSL Domestic Substances List.

**National regulations - Great Britain**

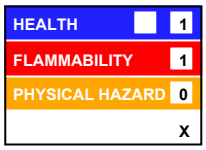
Hazchem-Code: -

## 16. Other information

Hazard rating systems:


NFPA Hazard Rating:
Health: 1 (Slight)
Fire: 1 (Slight)
Reactivity: 0 (Minimal)

HMIS Version III Rating:
Health: 1 (Slight)
Flammability: 1 (Slight)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor



Abbreviations and acronyms:
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
AS/NZS: Australian Standards/New Zealand Standards
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
DSL: Domestic Substances List
EC: European Community
EN: European Standard
EQ: Excepted quantities
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
LD50: Lethal dose 50%
LEL: Lower Explosion Limit
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
MFSU: Manufacture, formulation, supply and use
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
TRGS: Technical Rules for Hazardous Substances
UV: Ultraviolet
vPvB: Very persistent and very bioaccumulative

Reason of change: General revision

Date of first version: 8/8/2012

## Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.

# Styrolution PS 158K

General Purpose Polystyrene (GPPS)

TECHNICAL DATASHEET

## DESCRIPTION

Styrolution PS 158K is a heat resistant, rapid freezing general purpose grade. It is suitable for expanded sheet and film; for blends with high impact Styrolution PS in heat contact applications; for transparent, impact resistant applications in blends with Styrolux.

## FEATURES

- High heat resistance GPPS
- High transparency

## APPLICATIONS

- Replacement of SAN in several application like water filter containers, pen parts etc.
- Transparent sheet for Showcases & displays, consumer electronics, household application, photo frames, building material etc.
- Ideal material for physically or chemically foamed high-quality foamed articles, such as foam containers, labels or profiles (PSP / XPS)
- In blends with high impact polystyrene or Styrolux
- Injection molded articles

| Property, Test Condition | Standard | Unit | Values |
|---|---|---|---|
| **Rheological Properties** | | | |
| Melt Flow Rate, 200 °C/5 kg | ISO 1133 | g/10 min | 3 |
| Melt Volume Rate, 200 °C/5 kg | ISO 1133 | cm³/10 min | 3 |
| **Mechanical Properties** | | | |
| Izod Notched Impact Strength, 23 °C | ISO 180/A | kJ/m² | 2.5 |
| Charpy Notched Impact Strength, 23° C | ISO 179/1eA | kJ/m² | 3 |
| Charpy Unnotched, 23 °C | ISO 179/1eU | kJ/m² | 17 |
| Tensile Stress at Yield, 23 °C | ISO 527 | MPa | 55 |
| Tensile Strain at Break, 23 °C | ISO 527 | % | 3 |
| Tensile Modulus | ISO 527 | MPa | 3300 |
| Tensile Creep Modulus (1000h) | ISO 899 | MPa | 2600 |
| Tensile Creep Modulus (1h) | ISO 899 | MPa | 3300 |
| Flexural Strength, 23 °C | ISO 178 | MPa | 103 |

Contact us:
Phone +82 2 6322 7775
INSTY.infopoint.asia@ineos.com
www.ineos-styrolution.com


Revision Date: 2016.01.17

# Styrolution PS 158K

General Purpose Polystyrene (GPPS)

TECHNICAL DATASHEET

| Property, Test Condition | Standard | Unit | Values |
|---|---|---|---|
| Hardness, Ball Indentation | ISO 2039-1 | MPa | 150 |
| **Thermal Properties** | | | |
| Vicat Softening Temperature VST/B/50 (50N, 50 °C/h) | ISO 306 | °C | 101 |
| Vicat Softening Temperature, B/1 ( 120 °C/h, 10N) | ASTM D 1525 | °C | 108 |
| Vicat Softening Temperature, VST/A/50 (10N, 50 °C/h) | ISO 306 | °C | 106 |
| Heat Deflection Temperature A; (annealed 4 h/80 °C; 1.8 MPa) | ISO 75 | °C | 86 |
| Heat Deflection Temperature B; (annealed 4 h/80 °C; 0.45 MPa) | ISO 75 | °C | 98 |
| Coefficient of Linear Thermal Expansion | ISO 11359 | $10^{-6}$/°C | 80 |
| Thermal Conductivity | DIN 52612-1 | W/(m K) | 0.17 |
| **Electrical Properties** | | | |
| Dielectric Constant (100 Hz) | IEC 62631-2-1 | - | 2.5 |
| Dissipation Factor (100 Hz) | IEC 62631-2-1 | $10^{-4}$ | 0.9 |
| Dissipation Factor (1 MHz) | IEC 62631-2-1 | $10^{-4}$ | 0.5 |
| Dielectric Strength, Short Time, 1.5 mm | IEC 60243-1 | kV/mm | 135 |
| Relative Permittivity (100 Hz) | IEC 62631-2-1 | - | 2.5 |
| Relative Permittivity (1 MHz) | IEC 62631-2-1 | - | 2.5 |
| Volume Resistivity | IEC 62631-3-1 | Ohm*m | $>10^{16}$ |
| Surface Resistivity | IEC 62631-3-1 | Ohm | $>10^{14}$ |
| **Other Properties** | | | |
| Density | ISO 1183 | kg/m³ | 1048 |
| Bulk Density (with external lubricant) | - | kg/m³ | 600 |
| **Processing** | | | |
| Linear Mold Shrinkage | ISO 294-4 | % | 0.3 - 0.6 |
| Melt Temperature Range | ISO 294 | °C | 180 - 260 |
| Mold Temperature Range | ISO 294 | °C | 10 - 60 |
| Injection Velocity | ISO 294 | mm/s | 200 |

Contact us:
Phone +82 2 6322 7775
INSTY.infopoint.asia@ineos.com
www.ineos-styrolution.com

# Styrolution PS 158K

General Purpose Polystyrene (GPPS)

TECHNICAL DATASHEET

Typical values for uncolored products
Please note that all processing data stated are only indicative and may vary depending on the individual processing complexities.
Please consult our local sales or technical representatives for details.

## SUPPLY FORM

Styrolution PS 158K should be kept in its original containers in cool, dry place. Avoid direct exposure to sunlight. Styrolution PS 158K can be stored in silos.

## PROCESSING

Styrolution PS 158K can be injection molded at temperatures between 180 and 280°C. Recommended mold temperatures are between 10 and 60°C. Extrusion melt temperature should not exceed 240°C.

## PRODUCT SAFETY

During processing of Styrolution PS resins small quantities of styrene monomer may be released into the atmosphere. At styrene vapor concentrations below 20 ppm no negative effects on health are expected. In our experience, the concentration of styrene does not exceed 1 ppm in well ventilated workplaces - that is where five to eight air changes per hour are made. Further information can be found in our Styrolution PS safety data sheets.

## DISCLAIMER

The above mentioned data are accurate to the best of our knowledge. They are based upon reputable labs and industry standard testing methods. These are only typical values and actual product specification may deviate at industrial range. Therefore, no data in this technical data sheet shall constitute a warranty or representation regarding product features, fitness of the product for a specific purpose or application or its processability. INEOS Styrolution disclaims all liability in connection therewith. The customer himself is required to verify whether or not the product is suitable for the further processing or application intended and whether or not the product complies with the relevant statutory requirements. Unless explicitly and individually otherwise agreed in writing, INEOS Styrolution's sole and exclusive liability with respect to its products is set forth in INEOS Styrolution's General Terms and Conditions for Sale.

Contact us:
Phone +82 2 6322 7775
INSTY.infopoint.asia@ineos.com
www.ineos-styrolution.com

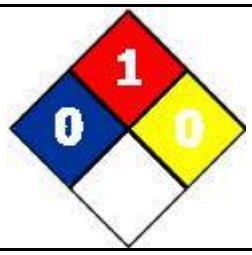
# TEMA S.r.l.

## CE – Safety data sheet according to norm 91/155/CE REV1--28/08/12

| | |
|---|---|
| **1. Identification** | |
| · **Product (Name)** | **TH2 STOP, TH2 STOP TAPE, TH2 STOP E CORNER, I CORNER, WALL COLLAR** |
| · **Supplier** | **TE.MA. - via dell'industria 21, 31029 Vittorio V.to Treviso (Italy) - Tel:+39/438/5031 - Fax: +39/438/503462** |
| · **Type of raw material**<br>· **Telephone number of urgent call to TEMA.**<br>· **Most important use** | - **Polyethylene, Polypropylene**<br>- **TEMA Tel. +39/438/5031**<br>- **waterproofing** |
| **2. Composition/information** | • Polyethylene approximately 65% CAS: 9002-88-4<br>• Polypropylene approximately 35% CAS: 9003-07-0<br>Chemical family : olefin polymers<br>• Stabilizers < 0.2%<br>CAS: 2082-79-3 EINECS: 218-216-0<br>CAS: 123-28-4 EINECS: 204-614-1<br>Additives and stabilizers 0.7% max.<br>Pigments from 0% to 8% |
| **3. Danger** | • Inhalation:<br>At temperatures higher than 200 °C it can create smoke which can irritate the respiratory system, causing coughing and loss of breath.<br>• Skin contact:<br>Contact with the hot or molten product can provoke severe burns.<br>• Physical and chemical danger:<br>Combustible if exposed to fire.<br>Friction of the product creates an electrostatic charge.<br>Sparks can cause fire or a dust explosion at certain concentrations. |
| **4. First aid** | • Inhalation:<br>Exposure to smoke and vapour of hot or burnt product.<br>In case of asphyxia or illness caused by exposure to smoke, remove the person immediately to the open air. If necessary call a doctor.<br>• Skin contact<br>Contact with hot or molten material:<br>Cool immediately the affected area with running cold water<br>DO NOT try to remove the polymer from the skin. Generally it will detach itself after a few days.<br>In case of extremely severe burns call a doctor immediately<br>• Contact with the eyes:<br>Cool the affected area immediately with running cold water<br>Cool immediately the eyes with cold water<br>Take the person immediately to hospital..<br>Specials treatment may be required. |

| | |
|---|---|
| **5. Fire fighting measures:** | . Extinguishers recommended :<br>For small fires use powder extinguishers, CO2 extinguishers or water.<br>For serious fires : foam, vaporized water to cool down surfaces exposed to the fire.<br>Prohibited extinguishers:<br>NEVER use high pressure water jets at the beginning; as this could increase the spread of flames.<br>. Combustion risks : Avoid smoke inhalation.<br>. Protection measures:<br>Wear protective masks. |
| **6. Measures to be adopted in case of accidental spread:** | **.** Environmental precautions:<br>Remove naked flares and any possible sources of combustion.<br>Do not smoke.<br>If the product has gone into a river, sewer or it has polluted either the ground, or vegetation, the authorities must be informed.<br>**.** Cleaning methods:<br>Collect the product for re-cycling, if possible, or to dispose of it. |
| **7. Handling and storage :** | **.** Handling precautions :<br>Do not smoke during installation.<br>**.** Storage :<br>Keep away from naked flames, sparks and heat sources. |
| **8. Control on exposure / personal protection:** | **.** Precautionary measures :<br>None. |
| **9. Physical/chemical features:** | **.** Appearance and colour : grey/blue<br>**.** Odour : none<br>**.** Flash point : 340 °C<br>**.** Density at 20°C : from 900 to 990 Kg/m3 |
| **10. Stability and reactivity :** | **.** Conditions to be avoided :<br>Stable under normal conditions.<br>**.** Substances to be avoided :<br>Avoid any contact with combustible materials. The product could burn.<br>Avoid strong oxidizers and fluorine. |
| **11. Toxicological information:** | **.** IARC (International Agency on Cancer Research):<br>Category 3. The substance is not classified as being dangerous to man. |
| **12. Environmental information:** | **.** Use in accordance with good working practices, dispose of correctly.<br>Non biodegradable, non toxic for the environment. |
| **13. Remarks on disposal :** | **.** To be recycled if possible, in accordance with local and national regulations. |
| **14. Freight information:** | **.** On road (ADR) : no limitations for freight<br>**.** On rail (RID) : no limitations for freight<br>**.** By sea (IMO-IMDG) : no limitations for freight<br>**.** By air (ICAO-IATA) : no limitations for freight<br>**.** Category of danger VbF : not applicable |
| **15. Rules:** | **.** None |
| **16. Other information:** | **.** No other information available |

# MATERIAL SAFETY DATA SHEET

| NFPA | WHMIS | Personal Protective Equipment | Transport Symbol |
|---|---|---|---|
|  | Not Controlled |  | Not Regulated |

**Preparation Date:** 328/6/202 **Revision Date** **Revision Number** 1

## 1. PRODUCT and COMPANY IDENTIFICATION

**Generic Product Name** Tema extruded polystyrene foam

**Common name** TEMA XPS

**Recommended Use** Insulation

**Contact manufacturer** Owens Corning foam insulation, LLC
One Owens Corning Parkway
Toledo, OH 43659

**Emergency telephone number**

**Health and Technical contacts**

## 2. HAZARD IDENTIFICATION

**Emergency Overview**

Dense Black Smoke will be produced during a fire

**Potential Health Effects**

**Principle Routes of Exposure** Eye
Inhalation

**Acute Effects**

- **Eyes** Dust may cause slight irritation
- **Skin** No effects expected
- **Inhalation** Dust may cause irritation of respiratory tract
- **Ingestion** Ingestion of material is unlikely

**Chronic Effects** There is no known chronic health effect connected with long-term use or contact with these products

**Aggravated Medical Conditions**
Chronic respiratory or skin conditions may temporarily worsen from exposure to this product

**Carcinogenic Status**
This product is not considered a carcinogen

**OSHA Regulatory Status**
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Potential Environmental Effects**
There is no known ecological information for this product

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| CAS # | Component | Percent by Wt. |
|---|---|---|
| 9003-53-6 | Polystyrene | 80-100 |
| 75-37-6 | HFC-152a | 6-10 |
| | | |
| | | |

**Non-Hazardous Statement** The remaining components of this product are non-hazardous or are in small enough quantities as to not meet regulatory thresholds for disclosure. These components contain no substances or impurities which would influence the classification of this product.

## 4. FIRST AID MEASURES

**Eye contact**
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 Minutes
- Do not rub or scratch eyes
- If eye irritation persists, consult a specialist

**Skin contact**
- Wash off immediately with soap and water.
- If skin irritation persists, call a physician

**Ingestion**
- Accidental ingestion of this material is unlikely
- If this does occur, watch person for several days to make sure intestinal blockage does not occur
- If symptoms persist, call a physician

**Inhalation**
- Move to fresh air

- If symptoms persist, call a physician

## 5. FIRE-FIGHTING MEASURES

**Flammability/Combustibility Properties** Non-flammable

**Suitable extinguishing media**
dry chemical
foam
carbon dioxide (CO2)
water fog

**Unsuitable Extinguishing Media** None

**Hazardous Combustion Products**

- Carbon Monoxide
- Carbon Dioxide (CO2)
- Styrene
- Small quantities of hydrogen fluoride, hydrogen chloride, fluorine and chlorine could be released.
- Other undetermined compounds could be released in small quantities

HCFC-142b thermally decomposes at > 430$^{o}$C (850$^{o}$F).
Decomposition products include:

- Hydrogen Fluoride
- Hydrogen Chloride
- Fluorine
- Chlorine

**Explosion Data**

**Sensitivity to Mechanical Impact** Not available

**Sensitivity to Static Discharge** Not available

**Special Hazards Arising from the Chemical**

Grinding, sawing, or fabrication activities of the pellets can produce dust particles which may under certain conditions form an explosive dust atmosphere that can be ignited.

**Protective Equipment and Precautions for Firefighters**

Wear self-contained breathing apparatus (SCBA) and full fire fighting protective gear

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions** Avoid contact with eyes and inhalation.

**Methods for Containment**
- Material will settle out of air
- Prevent from spreading by covering or other means

**Methods for Clean-up**
- Use an industrial vacuum cleaner to clean up dust
- Avoid dry sweeping
- After cleaning, flush away traces with water
- Pick up and transfer to properly labeled containers

## 7. HANDLING AND STORAGE

**Handling**
- Avoid dust formation
- Do not breathe dust
- Wear personal protective equipment

**Storage**
- Keep product in its packaging until use to minimize potential dust generation.

- Material should be kept dry and covered

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | ACGIH TLV | OSHA PEL |
|---|---|---|
| Polystyrene<br>9003-53-6 | 10 mg/m$^3$ (inhalable particulate)<br>3 mg/m$^3$ (respirable fraction – PNOC) | 15 mg/m$^3$ (total dust)<br>5 mg/m$^3$ (respirable fraction –PNOC) |
| Talc<br>14807-96-6 | 2 mg/m$^3$ (respirable fraction – PNOC) | 20 mppcf (Table Z-3 mineral dust) |

**Engineering Controls**

- Provide local exhaust and/or general ventilation to maintain exposure below regulatory and recommended limits.
- Grinding, sawing or fabrication activities of the Foamular® board can produce dust particles which may under certain conditions form explosive dust atmospheres that can be ignited.
- $f$ Dust collection system must be used in transferring operations, cutting or machining or other dust generating process.
- Vacuum or wet clean-up methods should be used

**Personal protective equipment**

**Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**Eye/face Protection**

Safety glasses with side-shields

**Skin Protection**

- Protective gloves
- Long sleeved shirt and long pants

**General Hygiene Considerations**

- Wash hands before breaks and immediately after handling the product
- Remove and wash contaminated clothing before re-use

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| **Appearance** | White | |
| **Odor** | Odorless | |
| **Physical State** | Solid | |
| **pH** | Does not apply | |
| **Flash point** | >615$^0$F/324$^0$C | Method ASTM D1929 |
| **Autoignition temperature** | Does not apply | |
| **Boiling Point** | Decomposes over 600$^U$F/316$^U$C | |
| **Melting point/range** | Softens @ 220$^0$F/104$^0$C | |
| **Flammability Limits in Air** | **lower /** | **upper /** |
| **Explosive properties** | Not available | |
| **Oxidizing properties** | Does not apply | |
| **Vapor Pressure** | Does not apply | |
| **Specific Gravity** | 0.021-0.064 (water=1) | |
| **Water solubility** | Insoluble | |
| **VOC content** | Not available | |

## 10. STABILITY AND REACTIVITY

**Chemical Stability** Stable

**Conditions to avoid** Dispersion of dust in air

**Incompatible Materials** Hydrocarbons

**Hazardous decomposition products**

- Carbon Monoxide
- Carbon Dioxide (CO2)
- Styrene
- Small quantities of hydrogen fluoride, hydrogen chloride, fluorine and chlorine could be released.
- Other undetermined compounds could be released in small quantities

HCFC-142b thermally decomposes at > 430$^{o}$C (850$^{o}$F). Decomposition products include:

- Hydrogen Fluoride
- Hydrogen Chloride
- Fluorine
- Chlorine

**Possibility of Hazardous Reactions** Hazardous polymerization does not occur

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**General Product Information**

Dusts from cutting and drilling may cause mechanical irritation to eyes and skin. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher exposures may cause difficulty breathing, congestion and chest tightness.

**Chronic toxicity**

**Component Analysis**

| | ACGIH | IARC | OSHA | NTP | Mexico |
|---|---|---|---|---|---|
| Polystyrene 9003-53-6 | | Group 3 not classifiable | -- | -- | -- |
| | | | | | |

**Allergy** No information available

**Neurological Effects** No information available

**Mutagenic Effects** No information available

**Reproductive Effects** No information available

**Developmental Effects** No information available

**Target Organ Effects** No information available

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:** This material is not expected to cause harm to animals, plants or fish

**Chemical Fate**

| | |
|---|---|
| **Persistance/Degradability** | Not available |
| **Bioaccumulation/Accumulation** | Not available |
| **Mobility in Environmental Media** | Not available |

## 13. DISPOSAL CONSIDERATIONS

| | |
|---|---|
| **Waste Disposal Method** | Dispose of in accordance with Local, State, Federal and Provincial regulations. |
| **Contaminated packaging** | Empty containers should be taken for local recycling, recovery or waste disposal. |
| **US EPA Waste Number** | No EPA Waste Numbers are applicable for this product's components. |
| **RCRA** | This material is not expected to be a characteristic hazardous waste under RCRA |

## 14. TRANSPORT INFORMATION

| | |
|---|---|
| **DOT** | not regulated |
| **TDG** | not regulated |
| **IMDG/IMO** | not regulated |
| **RID** | not regulated |
| **ADR** | not regulated |
| **ICAO** | not regulated |
| **IATA** | not regulated |
| **MEX** | not regulated |

## 15. REGULATORY INFORMATION

**International Inventories**

All components of this product are either listed on the following inventories or are exempt.

| Component | CAS # | TSCA | DSL | EINECS |
|---|---|---|---|---|
| Polystyrene | 9003-53-6 | Yes | Yes | No |
| HFC 152a | 75-37-6 | Yes | Yes | Yes |
| | | | | |
| Talc | 14807-96-6 | Yes | Yes | Yes |

**USA**

**Federal Regulations**

**SARA 313 Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)**

This product does contain a chemical which is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

HCFC-142b – form R reporting required for 1.0% de minims concentration

**SARA 311/312 Hazardous Categorization**

| | |
|---|---|
| **Acute Health Hazards** | no |
| **Chronic Health Hazards** | no |
| **Risk of Ignition** | no |
| **Sudden Release of Pressure** | no |
| **Reactive Hazard** | no |

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product does not contain any HAPs

**State Regulations**

**California Proposition 65**

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
**WARNING!** This product contains a chemical known to the State of California to cause cancer.

**State Right-To-Know**

| | CA | MA | MN | NJ | PA | IL | RI |
|---|---|---|---|---|---|---|---|
| HFC-152a | | X | | X | X | X | X |
| Talc | X | X | X | X | X | X | X |

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR**

**WHMIS Status** Not Controlled
**WHMIS Classification**

## 16. OTHER INFORMATION

**Preparation Date:**

**Revision Date**

**Revision Summary**

Disclaimer
**Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use**

**End of Safety Data Sheet**

# ATTACHMENT I

# EMISSION UNITS TABLE

**Attachment I**
**Emission Units Table**
**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| **XPS Extrusion Line** | | | | | | |
| NA | NA | Additive Bins 1-5 | 2024 | NA | New | None |
| X1S | X1E | Pneumatic System | 2023 | 550kg/hr | New | None |
| X2S | X2E | Virgin Silo/Bags/Octabins | 2024 | 550 kg/hr | New | X3DC/None |
| X3S | X3E | Doser/Extruder Feed Hopper | 2024 | 550 kg/hr | New | None |
| X4S | 2E | Extruder | 2024 | 550 kg/hr | New | None |
| X5S | X1CE | Trimmer and Surface Planner | 2024 | 550 kg/hr | New | X1DC |
| X6S | X6E | Dimensional Cutting | 2024 | 550 kg/hr | New | None |
| **Laminator Line** | | | | | | |
| X7S | 2E | Laminator | 2024 | 550 kg/hr | New | None |
| X8S | 1E | Trimmer | 2024 | 550 kg/hr | New | 1C |
| **XPS Recycling Line** | | | | | | |
| X9S | X12E | Pneumatic System | 2024 | 550 kg/hr | New | X2DC |
| X10S | X10E | Pneumatic System | 2024 | 550 kg/hr | New | VF |
| X11S | X11E | XPS Grinder | 2024 | 200 kg/hr | New | None |
| X12S | X12E | Outside Silo | 2024 | 200 kg/hr | New | X2DC |
| X13S | X1CE | Pneumatic System | 2024 | 200 kg/hr | New | X1DC |
| X14S | X1CE | Doser/Extruder Feed Hopper | 2023 | 200 kg/hr | New | X1DC |
| X15S | 2E | Extruder | 2023 | 200 kg/hr | New | None |
| X16S | X16E | Pellet Cutter | 2023 | 200 kg/hr | New | None |
| X17S | X1CE | Pneumatic System | 2023 | 200 kg/hr | New | X1DC |
| X18S | X1CE | Recycled Silo | 2023 | 200 kg/hr | New | X1DC |
| | | | | | | |
| | | | | | | |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal.
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

## Attachment I

## Emission Units Table

**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

**Line 2000 (Permitted)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| 1S | Transfer Points (TPS) | Super Sack Unloading Station No. 1 | 2018 | 400 kg/hr | New | N |
| 2S | TPS | Super Sack Unloading Station No. 2 | 2018 | 400 kg/hr | New | N |
| 3S | TPS | Manual Bag Unloading Station No. 1 | 2018 | 400 kg/hr | New | N |
| 4S | TPS | Screw Conveyor No. 1 | 2018 | 400 kg/hr | New | FE |
| 5S | TPS | Screw Conveyor No. 2 | 2018 | 400 kg/hr | New | FE |
| 6S | TPS | Screw Conveyor No. 3 | 2018 | 400 kg/hr | New | FE |
| 7S | TPS | Screw Conveyor No. 4 | 2018 | 400 kg/hr | New | FE |
| 8S | 1E | Blender | 2018 | 400 kg/hr | New | DC (1C) |
| 9S | TPS | Screw Conveyor No. 5 | 2018 | 400 kg/hr | New | FE |
| 10S | 1E | Pneumatic Transfer System | 2018 | 400 kg/hr | New | DC (1C) |
| 11S | 1E | Extruder Feed Hopper No. 1 | 2018 | 400 kg/hr | New | DC (1C) |
| 12S | TPS | Master Batch System | 2018 | 400 kg/hr | New | N |
| 13S | TPS | Extruder Feed Hopper No. 2 | 2018 | 400 kg/hr | New | N |
| 14S | 2E | Extruder | 2018 | 400 kg/hr | New | N |
| 15S | 1E | Shredder | 2018 | 400 kg/hr | New | DC (1C) |
| 16S | 1E | Pneumatic System | 2018 | 400 kg/hr | New | DC (1C) |
| 17S | 1E | Bulk Bag Loading Station | 2018 | 400 kg/hr | New | DC (1C) |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

## Attachment I

## Emission Units Table

**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

**External Shredders and Future Silo Storage (Permitted)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| 18S | 1E | External Shredder No. 1 | 2018 | 1,000 kg/hr | New | DC (1C) |
| 19S | 1E | External Shredder No. 2 | 2018 | 1,000 kg/hr | New | DC (1C) |
| 20S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| 21S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| 22S | 1E | Bulk Bag Loading Station | 2018 | 1,000 kg/hr | New | DC (1C) |
| 23S | 3E | Silo No. 1 Storage (Future) | 2018 | 1,000 kg/hr | New | VF (2C) |
| 24S | 4E | Silo No. 2 Storage (Future) | 2018 | 1,000 kg/hr | New | VF (3C) |
| 25S | 5E | Silo No. 3 Storage (Future) | 2018 | 1,000 kg/hr | New | VF (4C) |
| 26S | 6E | Silo No. 4 Storage (Future) | 2018 | 1,000 kg/hr | New | VF (5C) |
| 27S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| 28S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| 29S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| 30S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC (1C) |
| | | | | | | |
| | | | | | | |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

## Attachment I

## Emission Units Table

**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

**Line 3000 (Permitted)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| 31S | TPS | Super Sack Unloading Station No. 1 | 2018 | 600 kg/hr | New | N |
| 32S | 1E | Pneumatic Transfer System | 2018 | 600 kg/hr | New | DC (1C) |
| 33S | TPS | Super Sack Unloading Station No. 2 | 2018 | 600 kg/hr | New | N |
| 34S | 1E | Pneumatic Transfer System | 2018 | 600 kg/hr | New | DC (1C) |
| 35S | TPS | Manual Bag Unloading System No. 1 | 2018 | 600 kg/hr | New | N |
| 36S | 1E | Pneumatic Transfer System | 2018 | 600 kg/hr | New | DC (1C) |
| 37S | 1E | Blender | 2018 | 600 kg/hr | New | DC (1C) |
| 38S | TPS | Screw Conveyor No. 1 | 2018 | 600 kg/hr | New | N |
| 39S | 1E | Pneumatic Transfer System | 2018 | 600 kg/hr | New | DC (1C) |
| 40S | 1E | Extruder Feed Hopper No. 1 | 2018 | 600 kg/hr | New | DC (1C) |
| 41S | TPS | Master Batch System | 2018 | 600 kg/hr | New | N |
| 42S | TPS | Extruder Feed Hopper No. 2 | 2018 | 600 kg/hr | New | N |
| 43S | 2E (was 7E) | Extruder | 2018 | 600 kg/hr | New | N |
| 44S | 1E | Shredder | 2018 | 600 kg/hr | New | DC (1C) |
| 45S | 1E | Bulk Bag Loading | 2018 | 600 kg/hr | New | DC (1C) |
| 46S | 1E | Pneumatic Transfer System | 2018 | 600 kg/hr | New | DC (1C) |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

## Attachment I

## Emission Units Table

**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

**Line 4000 (Permitted)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| 47S | TPS | Super Sack Unloading Station No. 1 | 2018 | 1,000 kg/hr | New | N |
| 48S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC(1C) |
| 49S | 1E | Extruder Feed Hopper No. 1A and 1B | 2018 | 1,000 kg/hr | New | DC(1C) |
| 50S | TPS | Super Sack Unloading Station No. 2 | 2018 | 1,000 kg/hr | New | N |
| 51S | TPS | Super Sack Unloading Station No. 3 | 2018 | 1,000 kg/hr | New | N |
| 52S | TPS | Manual Bag Unloading Station No. 1 | 2018 | 1,000 kg/hr | New | N |
| 53S | TPS | Screw Conveyor No. 1 | 2018 | 1,000 kg/hr | New | N |
| 54S | TPS | Screw Conveyor No. 2 | 2018 | 1,000 kg/hr | New | N |
| 55S | TPS | Screw Conveyor No. 3 | 2018 | 1,000 kg/hr | New | N |
| 56S | TPS | Screw Conveyor No. 4 | 2018 | 1,000 kg/hr | New | N |
| 57S | 1E | Blender | 2018 | 1,000 kg/hr | New | DC(1C) |
| 58S | TPS | Screw Conveyor No. 5 | 2018 | 1,000 kg/hr | New | N |
| 59S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC(1C) |
| 60S | 1E | Extruder Feed Hopper No. 2A and 2B | 2018 | 1,000 kg/hr | New | DC(1C) |
| 61S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC(1C) |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

## Attachment I

## Emission Units Table

**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

**Line 4000 (Permitted)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] and Date of Change | Control Device[4] |
|---|---|---|---|---|---|---|
| 62S | 1E | Extruder Feed Hopper No. 3A and 3B | 2018 | 1,000 kg/hr | New | DC(1C) |
| 63S | TPS | Master Batch System | 2018 | 1,000 kg/hr | New | N |
| 64S | TPS | Extruder Feed Hopper No. 4A and 4B | 2018 | 1,000 kg/hr | New | N |
| 65S | 2E (was 8E) | Extruder | 2018 | 1,000 kg/hr | New | N |
| 66S | 1E | Shredder | 2018 | 1,000 kg/hr | New | DC(1C) |
| 67S | 1E | Bulk Bag Loading | 2018 | 1,000 kg/hr | New | DC(1C) |
| 68S | 1E | Pneumatic Transfer System | 2018 | 1,000 kg/hr | New | DC(1C) |
| 69S | 9E | Natural Gas/Propane Fueled Building Heaters (All Heaters Grouped Together) | 2018 | 2.22 MMBtu/hr | New | N |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

# ATTACHMENT J

# EMISSION POINTS DATA SUMMARY SHEET

# Attachment J
# EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Proposed XPS Board Extrusion Line)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| X3E | Vertical | X3S | Doser / Extruder Feed Hopper | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.49 | 2.14 | 0.10 | 0.43 | Solid | EE | NA |
| 2E | Vertical | X4S | Extruder | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>CO<br>Formaldehyde<br>Acrolein<br>Acetaldehyde<br>Propionaldehyde | 6.06<br>0.23<br>0.01<br>0.0009<br>0.0001<br>0.0006<br>0.0001 | 0.28<br>1.01<br>0.05<br>0.0039<br>0.0001<br>0.0024<br>0.0003 | 6.06<br>0.23<br>0.01<br>0.0009<br>0.0001<br>0.0006<br>0.0001 | 0.28<br>1.01<br>0.05<br>0.0039<br>0.0001<br>0.0024<br>0.0003 | Solids and Gases | EE | NA |
| X1CE | X5S | Vertical | Trimmer and Surface Planer | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.49 | 2.14 | 0.02 | 0.11 | Solid | EE | NA |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, all applicable Greenhouse Gases (including $CO_2$ and methane), etc. **DO NOT LIST** $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m$^3$) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is $SO_2$, use units of ppmv (See 45CSR10).

# Attachment J
# EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Proposed XPS Board Extrusion Line)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| X6E | Vertical | X6S | Dimensional Cutting | NA | NA | NA | NA | PM/PM10/PM25 | 0.49 | 2.14 | 0.10 | 0.43 | Solid | EE | NA |
| TPX1-TPX4 | Vertical | TPX1 - TPX4 | Transfer of Material (Manual [TPX1] Pneumatic [TPX2 - TPX10] | Varies | Varies | NA | NA | PM/PM10/PM2.5 | 1.95 | 8.55 | 0.71 | 3.10 | Solid | EE | NA |
| | | | | | | | | | | | | | | | |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, all applicable Greenhouse Gases (including $CO_2$ and methane), etc. **DO NOT LIST** $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m$^3$) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is $SO_2$, use units of ppmv (See 45CSR10).

## Attachment J
## EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Proposed Lamination Line)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 2E | Vertical | X7S | Lamination – Hot Melt | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>CO<br>Formaldehyde<br>Acrolein<br>Acetaldehyde<br>Propionaldehyde | 0.06<br>0.23<br>0.01<br>0.0009<br>0.00001<br>0.0006<br>0.0001 | 0.28<br>1.01<br>0.05<br>0.0039<br>0.0001<br>0.0024<br>0.0003 | 0.06<br>0.23<br>0.01<br>0.0009<br>0.00001<br>0.0006<br>0.0001 | 0.28<br>1.01<br>0.05<br>0.0039<br>0.0001<br>0.0024<br>0.0003 | Solid and Gas | EE | NA |
| | | | Lamination Glue | | | | | VOC<br>MDI | 0.022<br>0.022 | 0.096<br>0.096 | 0.022<br>0.022 | 0.096<br>0.096 | Gas | EE | NA |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, all applicable Greenhouse Gases (including $CO_2$ and methane), etc. **DO NOT LIST** $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

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[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m$^3$) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is $SO_2$, use units of ppmv (See 45CSR10).

# Attachment J
# EMISSION POINTS DATA SUMMARY SHEET

## Table 1: Emissions Data (Proposed XPS Recycling Line)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 2E | Vertical | X15S | Extruder | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>CO<br>Formaldehyde<br>Acrolein<br>Acetaldehyde<br>Propionaldehyde | 0.02<br>0.08<br>0.01<br>0.0003<br>0.00001<br>0.0002<br>0.00003 | 0.10<br>0.37<br>0.02<br>0.0014<br>0.00002<br>0.0009<br>0.0001 | 0.02<br>0.08<br>0.01<br>0.0003<br>0.00001<br>0.0002<br>0.00003 | 0.10<br>0.37<br>0.02<br>0.0014<br>0.00002<br>0.0009<br>0.0001 | Solids and Gases | EE | NA |
| X11E | Vertical | X11E | XPS Grinder | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.18 | 0.81 | 0.18 | 0.81 | Solids | EE | NA |
| | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| X1CE | Vertical | X14S | Doser / Extruder Feed Hopper | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.18 | 0.81 | 0.18 | 0.81 | Solid | EE | NA |
| X16E | Vertical | X16E | Pellet Cutter | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.18 | 0.81 | 0.18 | 0.81 | Solid | EE | NA |
| TPX5 – TPX9 | Vertical | TPX5 – TPX9 | Materials Transfers (Pneumatic) | Varies | Varies | NA | NA | PM/PM10/PM2.5 | 0.93 | 4.04 | 0.08 | 0.34 | Solid | EE | NA |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

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# Attachment J
# EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Existing)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/ Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| **Extruder 2000 System** | | | | | | | | | | | | | | | |
| 1E | Vertical | Various (See Attachment I) | | NA | NA | NA | NA | PM/PM10/PM2.5 | 6.79 | 29.75 | 0.14 | 0.59 | Solid | EF | NA |
| 2E | Vertical | 14S | Extruder 2000 | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>Total HAPS | 0.07<br>0.25<br>0.20 | 0.32<br>1.11<br>0.88 | 0.07<br>0.25<br>0.20 | 0.32<br>1.11<br>0.88 | Solid<br>Vapor<br>Vapor | EF | NA |
| 3E | Vertical | 23S | Silo Storage | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.89 | 3.89 | 0.02 | 0.08 | Solid | EF | NA |
| 4E | Vertical | 24S | Silo Storage | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.89 | 3.89 | 0.02 | 0.08 | Solid | EF | NA |
| 5E | Vertical | 25S | Silo Storage | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.89 | 3.89 | 0.02 | 0.08 | Solid | EF | NA |
| 6E | Vertical | 26S | Silo Storage | NA | NA | NA | NA | PM/PM10/PM2.5 | 0.89 | 3.89 | 0.02 | 0.08 | Solid | EF | NA |
| TPS | TPS | TPS | Transfer Points | NA | NA | NA | NA | PM/PM10/PM2.5 | 10.03 | 43.94 | 0.91 | 4.00 | Solid | EF | NA |

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[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

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[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

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## Attachment J Continued
## EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Existing)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| **Extruder 3000 System** | | | | | | | | | | | | | | | |
| 1E | Vertical | Various (See Attachment I) | | NA | NA | NA | NA | PM/PM10/PM2.5 | 3.75 | 16.43 | 0.07 | 0.33 | Solid | EF | NA |
| 2E (was 7E) | Vertical | 43S | Extruder 3000 | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>Total HAPS | 0.11<br>0.38<br>0.30 | 0.48<br>1.65<br>1.30 | 0.11<br>0.38<br>0.30 | 0.48<br>1.65<br>1.30 | Solid<br>Vapor<br>Vapor | EF | NA |
| TPS | TPS | TPS | Transfer Points | NA | NA | NA | NA | PM/PM10/PM2.5 | 3.75 | 16.43 | 0.75 | 3.29 | Solid | FE | NA |
| | | | | | | | | | | | | | | | |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

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## Attachment J Continued
## EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Existing)

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| **Extruder 4000 System** | | | | | | | | | | | | | | | |
| 1E | Vertical | Various (See Attachment I) | | NA | NA | NA | NA | PM/PM10/PM2.5 | 6.22 | 27.23 | 0.12 | 0.54 | Solid | EF | NA |
| 2E (was 8E) | Vertical | 65S | Extruder 4000 A and B | NA | NA | NA | NA | PM/PM10/PM2.5<br>VOC<br>Total HAPS | 0.18<br>0.62<br>0.49 | 0.79<br>2.72<br>2.16 | 0.18<br>0.62<br>0.49 | 0.79<br>2.72<br>2.16 | Solid<br>Vapor<br>Vapor | EF | NA |
| TPS | TPS | TPS | Transfer Points | NA | NA | NA | NA | PM/PM10/PM2.5 | 10.66 | 46.67 | 2.13 | 9.33 | Solid | EF | NA |
| | | | | | | | | | | | | | | | |

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## Attachment J Continued
## EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data (Existing)+

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| 9E | Vertical | 69S | Building Heater | NA | NA | NA | NA | PM/PM10/PM2.5<br>CO<br>$NO_x$<br>$SO_2$<br>VOC<br>Total HAPS | 0.02<br>0.18<br>0.22<br>0.01<br>0.01<br>0.000001 | 0.07<br>0.80<br>0.95<br>0.01<br>0.05<br>0.000005 | 0.02<br>0.18<br>0.22<br>0.01<br>0.01<br>0.000001 | 0.07<br>0.80<br>0.95<br>0.01<br>0.05<br>0.000005 | Solid<br>Gas<br>Gas<br>Gas<br>Vapor<br>PM/Vap. | EE | NA |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

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[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m$^3$) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is $SO_2$, use units of ppmv (See 45CSR10).

## Attachment J
## EMISSION POINTS DATA SUMMARY SHEET

| Table 2: Release Parameter Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Emission Point ID No. *(Must match Emission Units Table)* | Inner Diameter (ft.) | Exit Gas | | | Emission Point Elevation (ft) | | UTM Coordinates (km) | |
| | | Temp. ($^{o}$F) | Volumetric Flow [1] (acfm) *at operating conditions* | Velocity (fps) | Ground Level *(Height above mean sea level)* | Stack Height [2] *(Release height of emissions above ground level)* | Northing | Easting |
| Not Available | | | | | | | | |
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[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.
*See design details in the Appendix.

# ATTACHMENT K

# FUGITIVE EMISSIONS DATA SUMMARY SHEET

## Attachment K

## FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

| APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS |
|---|
| 1.) Will there be haul road activities?<br>☒ Yes ☐ No<br>☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET. |
| 2.) Will there be Storage Piles?<br>☐ Yes ☒ No<br>☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET. |
| 3.) Will there be Liquid Loading/Unloading Operations?<br>☐ Yes ☒ No<br>☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET. |
| 4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?<br>☐ Yes ☒ No<br>☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET. |
| 5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?<br>☐ Yes ☒ No<br>☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET. |
| 6.) Will there be General Clean-up VOC Operations?<br>☐ Yes ☒ No<br>☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET. |
| 7.) Will there be any other activities that generate fugitive emissions?<br>☐ Yes ☒ No<br>☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form. |
| If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary." |

| **FUGITIVE EMISSIONS SUMMARY** | All Regulated Pollutants - Chemical Name/CAS [1] | Maximum Potential Uncontrolled Emissions [2] | | Maximum Potential Controlled Emissions [3] | | Est. Method Used [4] |
|---|---|---|---|---|---|---|
| | | lb/hr | ton/yr | lb/hr | ton/yr | |
| Haul Road/Road Dust Emissions<br>Paved Haul Roads | | | | | | |
| Unpaved Haul Roads – PROPOSED (NEW) | PM<br>PM10<br>PM2.5 | 5.50<br>1.62<br>0.16 | 1.09<br>0.32<br>0.03 | 5.50<br>1.62<br>0.16 | 1.09<br>0.32<br>0.03 | AP-42 |
| Unpaved Haul Roads - EXISTING | PM<br>PM10<br>PM2.5 | 27.49<br>8.10<br>0.80 | 14.49<br>4.27<br>0.42 | 27.49<br>8.10<br>0.80 | 14.49<br>4.27<br>0.42 | |
| Storage Pile Emissions | | | | | | |
| Loading/Unloading Operations | | | | | | |
| Wastewater Treatment Evaporation & Operations | | | | | | |
| Equipment Leaks | | Does Not Apply | | Does Not Apply | | |
| General Clean-up VOC Emissions | | | | | | |
| Other | | | | | | |

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, etc. DO NOT LIST $CO_2$, $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

# ATTACHMENT L

# EMISSIONS UNIT DATA SHEETS

PROPOSED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): X1S through X6S

1. Name or type and model of proposed affected source:

   XPS Extrusion Line and associated feed system, transfers of material (pneumatic or other transfers), additive bins, bulk truck delivery, storage in virgin silo, octabins or bags, doser/extruder feed hopper, extruder cooling rollers, and trimmer and surface planer.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   550 kg/hr includes polystyrene pellets and additives with non-VOC gas.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA – plastic extrusion process.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | |
|---|---|---|---|---|
| | | | | |
| a. | $NO_X$ | See Attachment J | lb/hr | grains/ACF |
| b. | $SO_2$ | | lb/hr | grains/ACF |
| c. | CO | | lb/hr | grains/ACF |
| d. | $PM_{10}$ | | lb/hr | grains/ACF |
| e. | Hydrocarbons | | lb/hr | grains/ACF |
| f. | VOCs | | lb/hr | grains/ACF |
| g. | Pb | | lb/hr | grains/ACF |
| h. | Specify other(s) | | lb/hr | grains/ACF |
| | | | lb/hr | grains/ACF |
| | | | lb/hr | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Amount of material extruded. | Amount of material extruded. |
| REPORTING | TESTING |
| None proposed. | None proposed. |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PROPOSED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): X7S and X8S

1. Name or type and model of proposed affected source:

   Laminator line with hot melt lamination utilizing glue as needed with board sizing and final product trimming.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Lamination of materials to XPS board at 20 meters/minute.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | |
|---|---|---|---|
| | | | |
| a. $NO_X$ | See Attachment J | lb/hr | grains/ACF |
| b. $SO_2$ | | lb/hr | grains/ACF |
| c. CO | | lb/hr | grains/ACF |
| d. $PM_{10}$ | | lb/hr | grains/ACF |
| e. Hydrocarbons | | lb/hr | grains/ACF |
| f. VOCs | | lb/hr | grains/ACF |
| g. Pb | | lb/hr | grains/ACF |
| h. Specify other(s) | | | grains/ACF |
| | | lb/hr | grains/ACF |
| | | lb/hr | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| None proposed. | None proposed. |
| REPORTING | TESTING |
| None proposed. | None proposed. |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PROPOSED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): XS9 – XS18

1. Name or type and model of proposed affected source:

   XPS recycling line with pellet extruder, XPS grinder, pneumatic systems, silo, extruder fed system, extruder, water bath, pellet cutter and recycled storage silo.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   200 kg/hr of trimmings/recycled material from extrusion line.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA – plastic extrusion process.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | |
|---|---|---|---|---|
| | | | | |
| a. | $NO_X$ | See Attachment J | lb/hr | grains/ACF |
| b. | $SO_2$ | | lb/hr | grains/ACF |
| c. | CO | | lb/hr | grains/ACF |
| d. | $PM_{10}$ | | lb/hr | grains/ACF |
| e. | Hydrocarbons | | lb/hr | grains/ACF |
| f. | VOCs | | lb/hr | grains/ACF |
| g. | Pb | | lb/hr | grains/ACF |
| h. | Specify other(s) | | lb/hr | grains/ACF |
| | | | lb/hr | grains/ACF |
| | | | lb/hr | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Amount of material recycled. | Amount of material recycled. |
| REPORTING | TESTING |
| None proposed. | None proposed. |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PERMITTED

## Attachment L
## EMISSIONS UNIT DATA SHEET
## GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 1S-30S

1. Name or type and model of proposed affected source:

   Extruder 2000 and associated feed systems, transfers of material (pneumatic or other transfers), super sack unloading stations, manual unloading stations, to include all equipment listed in Attachment I under Line 2000 and including the future storage and transfer of bulk material into and out of silos. The extruder and all equipment that is used to extrude HDPE and PP into products through the typical thermos extrusion process. The extrusion line includes the ancillary sources to feed and remove the product.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Extruder 2000 – 400 kg/hr

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| a. | $NO_X$ | NA | lb/hr | NA | grains/ACF |
| b. | $SO_2$ | NA | lb/hr | NA | grains/ACF |
| c. | CO | NA | lb/hr | NA | grains/ACF |
| d. | $PM_{10}$ | 14.38 | lb/hr | NA | grains/ACF |
| e. | Hydrocarbons | NA | lb/hr | NA | grains/ACF |
| f. | VOCs | 0.25 | lb/hr | NA | grains/ACF |
| g. | Pb | NA | lb/hr | NA | grains/ACF |
| h. | Specify other(s)<br><br>Total HAPS<br>Individual HAPS listed in Attachment N | 0.20 | lb/hr | NA | grains/ACF |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Feed rate to the extruder in tons per month. | Feed rate to the extruder in tons per month. |
| **REPORTING** | **TESTING** |
| None | None |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PERMITTED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 31S-46S

1. Name or type and model of proposed affected source:

   Extruder 3000 and associated feed systems, transfers of material (pneumatic or other transfers), super sack unloading stations, manual unloading stations, to include all equipment listed in Attachment I under Line 3000 and including the future storage and transfer of bulk material into and out of silos. The extruder and all equipment that is used to extrude HDPE and PP into products through the typical thermos extrusion process. The extrusion line includes the ancillary sources to feed and remove the product.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Extruder 3000 – 600 kg/hr

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| a. | $NO_X$ | NA | lb/hr | NA | grains/ACF |
| b. | $SO_2$ | NA | lb/hr | NA | grains/ACF |
| c. | CO | NA | lb/hr | NA | grains/ACF |
| d. | $PM_{10}$ | 7.61 | lb/hr | NA | grains/ACF |
| e. | Hydrocarbons | NA | lb/hr | NA | grains/ACF |
| f. | VOCs | 0.25 | lb/hr | NA | grains/ACF |
| g. | Pb | NA | lb/hr | NA | grains/ACF |
| h. | Specify other(s)<br><br>Total HAPS<br>Individual HAPS listed in Attachment N | 0.30 | lb/hr | NA | grains/ACF |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Feed rate to the extruder in tons per month. | Feed rate to the extruder in tons per month. |
| REPORTING | TESTING |
| None | None |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PERMITTED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 47S-68S

1. Name or type and model of proposed affected source:

   Extruder 4000 and associated feed systems, transfers of material (pneumatic or other transfers), super sack unloading stations, manual unloading stations, to include all equipment listed in Attachment I under Line 4000 and including the future storage and transfer of bulk material into and out of silos. The extruder and all equipment that is used to extrude HDPE and PP into products through the typical thermos extrusion process. The extrusion line includes the ancillary sources to feed and remove the product.

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Extruder 4000 – 1,000 kg/hr

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Feed rate and production rate are the same.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable): Electric Heat - NA

(a) Type and amount in appropriate units of fuel(s) to be burned:

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| a. | $NO_X$ | NA | lb/hr | NA | grains/ACF |
| b. | $SO_2$ | NA | lb/hr | NA | grains/ACF |
| c. | CO | NA | lb/hr | NA | grains/ACF |
| d. | $PM_{10}$ | 17.05 | lb/hr | NA | grains/ACF |
| e. | Hydrocarbons | NA | lb/hr | NA | grains/ACF |
| f. | VOCs | 0.62 | lb/hr | NA | grains/ACF |
| g. | Pb | NA | lb/hr | NA | grains/ACF |
| h. | Specify other(s)<br><br>Total HAPS<br>Individual HAPS listed in Attachment N | 0.49 | | NA | grains/ACF |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Feed rate to the extruder in tons per month. | Feed rate to the extruder in tons per month. |
| REPORTING | TESTING |
| None | None |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

PERMITTED

# Attachment L
# EMISSIONS UNIT DATA SHEET
# GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 69S (9E)

1. Name or type and model of proposed affected source:

   Building Heaters (multiple heaters).

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   The emission unit is for the propane or natural gas fired building heaters with a total heat input of 2.22 MMBtu/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   None

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   NA

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Propane or natural gas at a total of 2.22 MMBtu/hr.

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Propane or Pipeline Quality Natural Gas

(c) Theoretical combustion air requirement (ACF/unit of fuel): NA

@ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Various

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 2.22 × $10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used: Per Booth

@ °F and psia

| | | | | | |
|---|---|---|---|---|---|
| a. | $NO_X$ | 0.22 | lb/hr | NA | grains/ACF |
| b. | $SO_2$ | 0.01 | lb/hr | NA | grains/ACF |
| c. | CO | 0.18 | lb/hr | NA | grains/ACF |
| d. | $PM_{10}$ | 0.02 | lb/hr | NA | grains/ACF |
| e. | Hydrocarbons | NA | lb/hr | NA | grains/ACF |
| f. | VOCs | 0.01 | lb/hr | NA | grains/ACF |
| g. | Pb | NA | lb/hr | NA | grains/ACF |
| h. | Specify other(s) | | | | |
| | HAPS* | 0.000001 | | NA | grains/ACF |
| | *Speciated HAPS shown in Attachment N | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| None | None |
| REPORTING | TESTING |
| None | None |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

None

# Attachment L
## FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

*UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

| | | PM | PM-10 |
|---|---|---|---|
| k = | Particle size multiplier | 10 | 10 |
| s = | Silt content of road surface material (%) | 148 | 148 |
| p = | Number of days per year with precipitation >0.01 in. | | |

| Item Number | Description | Number of Wheels | Mean Vehicle Weight (tons) | Mean Vehicle Speed (mph) | Miles per Trip | Maximum Trips per Hour | Maximum Trips per Year | Control Device ID Number | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Delivery Road (Existing) | 10-18 | 30 | 10 | 0.38 | 10 | 10,540 | NA | 0 |
| 2 | Delivery Road (Proposed) | 10-18 | 30 | 10 | 0.38 | 10 | 797 | NA | 0 |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |

**Source:** *AP-42 Fifth Edition – 13.2.2 Unpaved Roads*

$E = k \times 5.9 \times (s \div 12) \times (W \div 3)^{0.7} \times ((365 - p) \div 365) =$ lb/Vehicle Mile Traveled (VMT)

Where:

| | | PM | PM-10 |
|---|---|---|---|
| k = | Particle size multiplier | 0.49 | 1.5 |
| s = | Silt content of road surface material (%) | 10 | 10 |
| S = | Mean vehicle speed (mph) | 10 | 10 |
| W = | Mean vehicle weight (tons) | 30 | 30 |
| w = | Mean number of wheels per vehicle | 10-18 | 10-18 |
| p = | Number of days per year with precipitation >0.01 in. | 148 | 148 |

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF UNPAVED HAULROAD EMISSIONS

| Item No. | PM | | | | PM-10/PM2.5 | | | |
|---|---|---|---|---|---|---|---|---|
| | Uncontrolled | | Controlled | | Uncontrolled | | Controlled | |
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| 1 | 27.49 | 14.49 | 27.49 | 14.49 | 8.10/0.80 | 4.27/0.42 | 8.10/0.80 | 4.27/0.42 |
| 2 | 5.50 | 1.09 | 5.50 | 1.09 | 1.62/0.16 | 0.32/0.03 | 1.62/0.16 | 0.32/0.03 |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| TOTALS | 32.99 | 16.08 | 32.99 | 16.08 | 9.72/0.96 | 4.59/0.45 | 9.72/0.96 | 4.59/0.45 |

# ATTACHMENT M

# AIR POLLUTION CONTROL DEVICE SHEETS

# Attachment M
# Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): XDC1

**Equipment Information and Filter Characteristics**

| | |
|---|---|
| 1. Manufacturer: Ventilveneta Sri<br>Model No. To be determined | 2. Total number of compartments: 1<br>3. Number of compartment online for normal operation: 1 |

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction
☐ Electrostatically Enhanced Fabric
☒ Other, Specify Vacuum

| | |
|---|---|
| 6. Filter Fabric Bag Material:<br>☐ Nomex nylon ☐ Wool<br>☒ Polyester ☐ Polypropylene<br>☐ Acrylics ☐ Ceramics<br>☐ Fiber Glass<br>☐ Cotton Weight oz./sq.yd<br>☐ Teflon Thickness in<br>☐ Others, specify | 7. Bag Dimension: NA<br>Diameter 4.8 in.<br>Length 8.2 ft.<br>8. Total cloth area: 3,422 $ft^2$<br>9. Number of bags: 330<br>10. Operating air to cloth ratio: 3.74 ft/min |

11. Baghouse Operation: ☒ Continuous During Extrusion ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
☐ Bag Collapse ☒ Pulse Jet
☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
☐ Timer ☐ Frequency if timer actuated
☒ Expected pressure drop range 3.94 in. of water ☐ Other

| | |
|---|---|
| 14. Operation Hours: Max. per day: 24<br>Max. per yr: 8,760 | 15. Collection efficiency: Rating: 100 %<br>Guaranteed minimum: 100 % |

**Gas Stream Characteristics**

16. Gas flow rate into the collector: 12,860 ACFM at 68 °F and Ambient PSIA
ACFM: Design: NA PSIA Maximum: NA PSIA Average Expected: NA PSIA

17. Water Vapor Content of Effluent Stream: 0 lb. Water/lb. Dry Air

| | |
|---|---|
| 18. Gas Stream Temperature: 68 °F | 19. Fan Requirements: 37 kw/50 hp<br>OR $ft^3$/min |

20. Stabilized static pressure loss across baghouse. Pressure Drop: High 100 in. $H_2O$
Low 70 in. $H_2O$

21. Particulate Loading: Inlet: NA grain/scf Outlet: NA grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):
XPS Particulate

23. Is there any $SO_3$ in the emission stream? ☐ No ☐ Yes $SO_3$ content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

| Pollutant: | IN | | OUT | |
|---|---|---|---|---|
| | lb/hr | grains/acf | lb/hr | grains/acf |
| PM/PM10/PM2.5 | See calculations for pneumatic transfers to X1C | 1.54 | NA | <0.077 |
| | NA | NA | NA | NA |

25. Complete the table:

| Particulate Size Range (microns) | Particle Size Distribution at Inlet to Collector<br>Weight % for Size Range | Fraction Efficiency of Collector<br>Weight % for Size Range |
|---|---|---|
| 0 – 2 | 0% | 0% |
| 2 – 4 | | |
| 4 – 6 | | |
| 6 – 8 | 100% | 95% |
| 8 – 10 | | |
| 10 – 12 | | |
| 12 – 16 | | |
| 16 – 20 | | |
| 20 – 30 | | |
| 30 – 40 | | |
| 40 – 50 | | |
| 50 – 60 | | |
| 60 – 70 | | |
| 70 – 80 | | |
| 80 – 90 | | |
| 90 – 100 | | |
| >100 | | |

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
☐ Continuous Opacity
☒ Pressure Drop
☒ Alarms-Audible to Process Operator
☐ Visual opacity readings, Frequency:
☒ Other, specify: Triboelectric probe for detecting dust particles at outlet.

27. Describe any recording device and frequency of log entries:
Manual log entries on pressure drop.

28. Describe any filter seeding being performed:
None

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
None

30. Describe the collection material disposal system:
During normal operation, it is a closed loop system sending collected material to the recycle line. During extraordinary operations, there is a diverter valve that will feed to hoppers or super sacks.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING: | RECORDKEEPING: |
|---|---|
| Differential pressure. | Differential pressure. |
| REPORTING: | TESTING: |
| None | None |

| | |
|---|---|
| MONITORING: | Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |
| RECORDKEEPING: | Please describe the proposed recordkeeping that will accompany the monitoring. |
| REPORTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |
| TESTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
100%

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
95%

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
Maintenance procedures for the selected model will be followed as provided by the manufacturer.

# Attachment M
# Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): X2DC

**Equipment Information and Filter Characteristics**

1. Manufacturer: Tecnodinamica Sri
   Model No. PF050420

2. Total number of compartments: 1

3. Number of compartment online for normal operation: 1

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   - ☒ Open Pressure
   - ☐ Closed Pressure
   - ☐ Closed Suction
   - ☐ Electrostatically Enhanced Fabric
   - ☐ Other, Specify

6. Filter Fabric Bag Material:
   - ☐ Nomex nylon
   - ☐ Wool
   - ☒ Polyester
   - ☐ Polypropylene
   - ☐ Acrylics
   - ☐ Ceramics
   - ☐ Fiber Glass
   - ☐ Cotton Weight oz./sq.yd
   - ☐ Teflon Thickness in
   - ☐ Others, specify

7. Bag Dimension:
   Diameter 8.66 in.
   Length 3.94 ft.

8. Total cloth area: 1085 $ft^2$

9. Number of bags: 112

10. Operating air to cloth ratio: ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   - ☒ Mechanical Shaker
   - ☐ Pneumatic Shaker
   - ☐ Bag Collapse
   - ☐ Manual Cleaning
   - ☐ Sonic Cleaning
   - ☐ Reverse Air Flow
   - ☐ Pulse Jet
   - ☐ Reverse Jet
   - ☐ Reverse Air Jet
   - ☐ Other:

13. Cleaning initiated by:
   - ☒ Timer
   - ☐ Frequency if timer actuated 1 per day
   - ☐ Expected pressure drop range in. of water
   - ☐ Other

14. Operation Hours: Max. per day: 24 Max. per yr: 8,760

15. Collection efficiency: Rating: ~100 %
   Guaranteed minimum: ~100 %

**Gas Stream Characteristics**

16. Gas flow rate into the collector: 4,700 ACFM at °F and Ambient PSIA
   ACFM: Design: 4,700 PSIA Maximum: Ambient PSIA Average Expected: Ambient PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: Ambient °F

19. Fan Requirements: 15 hp
   OR $ft^3$/min

20. Stabilized static pressure loss across baghouse. Pressure Drop:
   High NA in. $H_2O$
   Low NA in. $H_2O$

21. Particulate Loading: Inlet: grain/scf Outlet: grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):
Solids - PM

23. Is there any $SO_3$ in the emission stream? ☒ No ☐ Yes $SO_3$ content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

| | IN | | OUT | |
|---|---|---|---|---|
| **Pollutant:** | **lb/hr** | **grains/acf** | **lb/hr** | **grains/acf** |
| PM | 100 | 70.043 | 0.1 | $0.43 \times 10^{-4}$ |
| | | | | |

25. Complete the table:

| | **Particle Size Distribution at Inlet to Collector** | **Fraction Efficiency of Collector** |
|---|---|---|
| **Particulate Size Range (microns)** | **Weight % for Size Range** | **Weight % for Size Range** |
| 0 – 2 | 0% | 0% |
| 2 – 4 | | |
| 4 – 6 | | |
| 6 – 8 | | |
| 8 – 10 | | |
| 10 – 12 | | |
| 12 – 16 | | |
| 16 – 20 | | |
| 20 – 30 | | |
| 30 – 40 | 10% | 95% |
| 40 – 50 | | |
| 50 – 60 | | |
| 60 – 70 | | |
| 70 – 80 | | |
| 80 – 90 | | |
| 90 – 100 | | |
| >100 | 90% | |

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☐ Pressure Drop
- ☐ Alarms-Audible to Process Operator Not Selected Yet
- ☐ Visual opacity readings, Frequency:
- ☒ Other, specify: Visual checks

27. Describe any recording device and frequency of log entries:
See Inspection Log for Dust Collectors.

28. Describe any filter seeding being performed:
None

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
None

30. Describe the collection material disposal system:
Collected material is either sent back to the process or to super sacks.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING: | RECORDKEEPING: |
|---|---|
| Differential pressure | Differential pressure |
| REPORTING: | TESTING: |
| None | None |

| | |
|---|---|
| MONITORING: | Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |
| RECORDKEEPING: | Please describe the proposed recordkeeping that will accompany the monitoring. |
| REPORTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |
| TESTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
100%

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
95%

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
Maintenance procedures for the selected model will be followed as provided by the manufacturer.

# Attachment M
# Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): X3DC

**Equipment Information and Filter Characteristics**

| | |
|---|---|
| 1. Manufacturer: Manufacturer Not Selected Yet<br>Model No. The units will be a dust collector or vacuum filters with a control efficiency of 95% or greater. | 2. Total number of compartments: 1<br>3. Number of compartment online for normal operation: 1 |

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one) ☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction ☐ Electrostatically Enhanced Fabric ☐ Other, Specify

| | |
|---|---|
| 6. Filter Fabric Bag Material:<br>☐ Nomex nylon ☐ Wool<br>☐ Polyester ☐ Polypropylene<br>☐ Acrylics ☐ Ceramics<br>☐ Fiber Glass<br>☐ Cotton Weight oz./sq.yd<br>☐ Teflon Thickness in<br>☐ Others, specify | 7. Bag Dimension:<br>Diameter in.<br>Length ft.<br>8. Total cloth area: $ft^2$<br>9. Number of bags:<br>10. Operating air to cloth ratio: ft/min |

11. Baghouse Operation: ☐ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
☐ Bag Collapse ☐ Pulse Jet
☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
☐ Timer ☐ Frequency if timer actuated
☐ Expected pressure drop range in. of water ☐ Other

| | |
|---|---|
| 14. Operation Hours: Max. per day:<br>Max. per yr: | 15. Collection efficiency: Rating: %<br>Guaranteed minimum: % |

**Gas Stream Characteristics**

16. Gas flow rate into the collector: ACFM at °F and PSIA
ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

| | |
|---|---|
| 18. Gas Stream Temperature: °F | 19. Fan Requirements: hp<br>OR $ft^3$/min |

20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. $H_2O$
Low in. $H_2O$

21. Particulate Loading: Inlet: grain/scf Outlet: grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):
Plastic Particulate

23. Is there any $SO_3$ in the emission stream? ☐ No ☐ Yes $SO_3$ content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

| **Pollutant:** PM/PM10/PM2.5 | **IN** | | **OUT** | |
|---|---|---|---|---|
| | **lb/hr** | **grains/acf** | **lb/hr** | **grains/acf** |
| TPx4 – Particulate Matter | 0.49 | NA | 0.03 | NA |
| | | | | |

25. Complete the table:

| **Particulate Size Range (microns)** | **Particle Size Distribution at Inlet to Collector**<br>**Weight % for Size Range** | **Fraction Efficiency of Collector**<br>**Weight % for Size Range** |
|---|---|---|
| 0 – 2 | NA | 98% |
| 2 – 4 | | |
| 4 – 6 | | |
| 6 – 8 | | |
| 8 – 10 | | |
| 10 – 12 | | |
| 12 – 16 | | |
| 16 – 20 | | |
| 20 – 30 | | |
| 30 – 40 | | |
| 40 – 50 | | |
| 50 – 60 | | |
| 60 – 70 | | |
| 70 – 80 | | |
| 80 – 90 | | |
| 90 – 100 | | |
| >100 | | |

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☐ Pressure Drop
- ☐ Alarms-Audible to Process Operator Not Selected Yet
- ☐ Visual opacity readings, Frequency:
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:
None

28. Describe any filter seeding being performed:
None

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
None

30. Describe the collection material disposal system:
Return to system.

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING: | RECORDKEEPING: |
|---|---|
| None | None |
| REPORTING: | TESTING: |
| None | None |

| | |
|---|---|
| MONITORING: | Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |
| RECORDKEEPING: | Please describe the proposed recordkeeping that will accompany the monitoring. |
| REPORTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |
| TESTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
Not Selected Yet

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
95% Estimated

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
Not Selected Yet

# ATTACHMENT N

# SUPPORTING EMISSIONS CALCULATIONS

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**Updated PTE**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM | 75.62 | 202.30 | 38.54 | 39.85 |
| PM10 | 52.35 | 191.31 | 15.27 | 28.86 |
| PM2.5 | 43.59 | 187.17 | 6.51 | 24.72 |
| VOCs | 1.70 | 7.47 | 1.70 | 7.47 |
| NOx | 0.22 | 0.95 | 0.22 | 0.95 |
| CO | 0.21 | 0.93 | 0.21 | 0.93 |
| SO2 | 0.01 | 0.01 | 0.01 | 0.01 |
| Total HAPS | 1.02 | 4.47 | 1.02 | 4.47 |

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**Facility PTE**

Point Sources

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| Parameter | lb/hr | tpy | lb/hr | tpy |
| PM/PM10/PM2.5 | 39.06 | 171.08 | 4.46 | 19.54 |
| NOx | 0.22 | 0.95 | 0.22 | 0.95 |
| CO | 0.18 | 0.80 | 0.18 | 0.80 |
| SO2 | 0.01 | 0.01 | 0.01 | 0.01 |
| Alkaline Dust (NaOH) | 0.0135 | 0.0590 | 0.0135 | 0.0590 |
| Total Organic Carbon (TOC) | 0.9575 | 4.1940 | 0.9575 | 4.1940 |
| Sec-Butanol (Secondary Butanol) | 0.0269 | 0.1181 | 0.0269 | 0.1181 |
| Iso-propanol | 0.0269 | 0.1181 | 0.0269 | 0.1181 |
| Toluene | 0.0540 | 0.2363 | 0.0540 | 0.2363 |
| Acetone | 0.0809 | 0.3544 | 0.0809 | 0.3544 |
| Ethyl acetate | 0.0675 | 0.2953 | 0.0675 | 0.2953 |
| n-Pentane | 0.0269 | 0.1181 | 0.0269 | 0.1181 |
| n-Hexane Solvents | 0.8497 | 3.7215 | 0.8497 | 3.7215 |
| Acetaldehyde | 0.0675 | 0.2953 | 0.0675 | 0.2953 |
| 2-Propanal (Acrolein) | 0.0014 | 0.0059 | 0.0014 | 0.0059 |
| Formaldehyde | 0.0135 | 0.0590 | 0.0135 | 0.0590 |
| Crotonaldehyde (2-Butenal) | 0.0026 | 0.0118 | 0.0026 | 0.0118 |
| Butirraldehyde (Butyraldehyde) | 0.0054 | 0.0237 | 0.0054 | 0.0237 |
| Propionaldehyde | 0.0054 | 0.0237 | 0.0054 | 0.0237 |
| Glutaraldehyde | 0.0026 | 0.0118 | 0.0026 | 0.0118 |
| Valeraldehyde (Pentaldehyde) | 0.0040 | 0.0177 | 0.0040 | 0.0177 |
| Isovaleraldehyde (Isopentanal) | 0.0040 | 0.0177 | 0.0040 | 0.0177 |
| Benzaldehyde | 0.0026 | 0.0118 | 0.0026 | 0.0118 |
| 2,5-Dimethylbenzaldehyde | 0.0014 | 0.0059 | 0.0014 | 0.0059 |
| Hexaldehyde | 0.0026 | 0.0118 | 0.0026 | 0.0118 |
| o-Tolualdehyde | 0.0014 | 0.0059 | 0.0014 | 0.0059 |
| m-Tolualdehyde | 0.0014 | 0.0059 | 0.0014 | 0.0059 |
| p-Tolualdehyde | 0.0014 | 0.0059 | 0.0014 | 0.0059 |
| Total VOC (VOC/HAPS and VOCs) | 1.1369 | 4.9857 | 1.1369 | 4.9857 |
| Total HAPS (1) | 0.9956 | 4.3597 | 0.9956 | 4.3597 |

Fugitive

| | | | | |
|---|---|---|---|---|
| PM | 27.49 | 14.49 | 27.49 | 14.49 |
| PM10 | 8.10 | 4.27 | 8.10 | 4.27 |
| PM2.5 | 0.80 | 0.42 | 0.80 | 0.42 |

Total PM

| | | | | |
|---|---|---|---|---|
| PM | 66.55 | 185.57 | 31.95 | 34.03 |
| PM10 | 47.16 | 175.35 | 12.56 | 23.81 |
| PM2.5 | 39.86 | 171.50 | 5.26 | 19.96 |

1. Total HAPS includes natural gas combustion HAPS. The other identified HAPS on this page do not include the natural gas combustion HAPS, only the extrusion HAPS.

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**Extrusion Emissions**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM/PM10/PM2.5 | 0.09 | 0.39 | 0.09 | 0.39 |
| VOCs | 0.31 | 1.38 | 0.31 | 1.38 |
| Carbon Monoxide | 0.02 | 0.07 | 0.02 | 0.07 |
| Formaldehyde | 0.00122 | 0.00536 | 0.00122 | 0.00536 |
| Acrolein | 0.00002 | 0.00007 | 0.00002 | 0.00007 |
| Acethaldehyde | 0.00076 | 0.00333 | 0.00076 | 0.00333 |
| Propionaldehyde | 0.00009 | 0.00036 | 0.00009 | 0.00036 |
| Total HAPS | 0.00210 | 0.00913 | 0.00210 | 0.00913 |

**Transfer Point and Equipment Particulate Matter Emissions**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM/PM10/PM2.5 | 3.42 | 14.96 | 0.93 | 4.06 |

**Lamination Emissions**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM/PM10/PM2.5 | 0.06 | 0.28 | 0.06 | 0.28 |
| VOCs | 0.25 | 1.11 | 0.25 | 1.11 |
| Carbon Monoxide | 0.01 | 0.05 | 0.01 | 0.05 |
| Formaldehyde | 0.00090 | 0.00393 | 0.00090 | 0.00393 |
| Acrolein | 0.00001 | 0.00005 | 0.00001 | 0.00005 |
| Acethaldehyde | 0.00056 | 0.00244 | 0.00056 | 0.00244 |
| Propionaldehyde | 0.00006 | 0.00027 | 0.00006 | 0.00027 |
| MDI | 0.022 | 0.096 | 0.02 | 0.10 |
| Total HAPS | 0.02347 | 0.10280 | 0.02347 | 0.10280 |

**Trucking for XPS Production**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM | 5.50 | 1.09 | 5.50 | 1.09 |
| PM10 | 1.62 | 0.32 | 1.62 | 0.32 |
| PM2.5 | 0.16 | 0.03 | 0.16 | 0.03 |

**Total Proposed Emissions**

| | Uncontrolled | | Controlled | |
|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr |
| PM | 9.07 | 16.72 | 6.59 | 5.82 |
| PM10 | 5.19 | 15.95 | 2.71 | 5.05 |
| PM2.5 | 3.73 | 15.66 | 1.25 | 4.76 |
| VOCs | 0.57 | 2.48 | 0.57 | 2.48 |
| Carbon Monoxide | 0.03 | 0.13 | 0.03 | 0.13 |
| Formaldehyde | 0.00212 | 0.00929 | 0.00212 | 0.00929 |
| Acrolein | 0.00003 | 0.00013 | 0.00003 | 0.00013 |
| Acethaldehyde | 0.00132 | 0.00577 | 0.00132 | 0.00577 |
| Propionaldehyde | 0.00015 | 0.00063 | 0.00015 | 0.00063 |
| MDI | 0.022 | 0.096 | 0.022 | 0.096 |
| Total HAPS | 0.02557 | 0.11193 | 0.02557 | 0.11 |

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**XPS Extrusion Line Emissions (X4S)**

| | | |
|---|---|---|
| Line Capacity = | 550 | kg/hr |
| | 1,212.54 | lb/hr |
| | 0.00121254 | MM lb/hr |
| Operating Hours = | 8,760 | hrs/yr |
| Yearly Operating Rate = | 10,621,850 | lb/yr |
| | 10.6219 | MM lbs/yr |

| Polymer Used | Pollutant | Emission Factor[2,3] | Emission | |
|---|---|---|---|---|
| | | | lb/hr | tpy |
| Polystyrene[1] | PM/PM10/PM2.5 | 53.3 | 0.06 | 0.28 |
| | VOCs | 190 | 0.23 | 1.01 |
| | Carbon Monoxide | 10 | 0.01 | 0.05 |
| | Formaldehyde[4] | 0.74 | 0.0009 | 0.0039 |
| | Acrolein[4] | 0.01 | 0.00001 | 0.0001 |
| | Acethaldehyde[4] | 0.46 | 0.0006 | 0.0024 |
| | Propionaldehyde[4] | 0.05 | 0.0001 | 0.0003 |

NOTES:

1 Process Description: Injection Molding; used highest value from 'general molding' and 'automotive parts molding'. Composite ABS resin from 3 different manufacturers.

2 Emission factors from "Sampling and Analysis of Fumes Evolved During thermal Processing of Polystyrene Resins", Dow Chemical, et al. obtained from Indiana DEM air permit for Primex Plastics Corp.

3 Unit of Measure = lb/MM lbs polymer processed

4 Hazardous Air Pollutants (HAPs)

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**XPS Extrusion Line Transfers and Equipment Emissions (TPX1-TPX4 Pneumatic, Mechanical, and Manual Transfers)**

Process Rate

550 kg/hr
1,212.54 lb/hr
0.61 ton/hr
5,343.60 ton/yr (based on 8,760 hrs/yr)

Emission Factors

Transfer Points = 0.80 lb/ton Source: Flying W Plastics Permit Application, Plant I.D. 021-00007, Dated May 2017.
Blending = 0.80 lb/ton Source: Flying W Plastics Permit Application, Plant I.D. 021-00007, Dated May 2017.

| ID | Transfer Capacities | | e | Control Device | | Emissions Uncontrolled | | Emissions Controlled | |
|---|---|---|---|---|---|---|---|---|---|
| | tph | tpy | lb/T | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| TPX1 (Manual Filling of Additive Bins) | 0.61 | 5,344 | 0.80 | N | 0 | 0.49 | 2.14 | 0.49 | 2.14 |
| TPX2 (Pneumatic Transfer of Materials from Additive Bins and Octabins) | 0.61 | 5,344 | 0.80 | FE | 80 | 0.49 | 2.14 | 0.10 | 0.43 |
| TPX3 (Doser /Extruder Feed Hopper to Extruder) | 0.61 | 5,344 | 0.80 | FE | 80 | 0.49 | 2.14 | 0.10 | 0.43 |
| TPX4 (Future Pneumatic Bulk Delivery to Virgin Silo) | 0.61 | 5,344 | 0.80 | PN-VF | 95 | 0.49 | 2.14 | 0.03 | 0.11 |
| | | | | | PM/PM10/PM2.5 = | 1.95 | 8.55 | 0.71 | 3.10 |

| ID | Transfer Capacities | | e | Control Device | | Emissions Uncontrolled | | Emissions Controlled | |
|---|---|---|---|---|---|---|---|---|---|
| | tph | tpy | lb/T | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| Doser/Extruder Feed Hopper (X3S) | 0.61 | 5,344 | 0.80 | FE | 80 | 0.49 | 2.14 | 0.10 | 0.43 |
| Trimmer and Surface Planner (X5S) | 0.61 | 5,344 | 0.80 | DC | 95 | 0.49 | 2.14 | 0.02 | 0.11 |
| Dimensional Cutting (X6S) | 0.61 | 5,344 | 0.80 | FE | 80 | 0.49 | 2.14 | 0.10 | 0.43 |
| | | | | | PM/PM10/PM2.5 = | 1.46 | 6.41 | 0.22 | 0.96 |
| | | | | | Total PM/PM10/PM2.5 = | 3.42 | 14.96 | 0.93 | 4.06 |

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**Scrap Re-Extrusion Line Emissions (X15S)**

| | | |
|---|---|---|
| Line Capacity = | 200 | kg/hr |
| | 440.92 | lb/hr |
| | 0.00044092 | MM lb/hr |
| Operating Hours = | 8,760 | hrs/yr |
| Yearly Operating Rate = | 3,862,459 | lb/yr |
| | 3.8625 | MM lbs/yr |

| Polymer Used | Pollutant | Emission Factor[2,3] | Emission | |
|---|---|---|---|---|
| | | | lb/hr | tpy |
| Polystyrene[1] | PM/PM10/PM2.5 | 53.3 | 0.02 | 0.10 |
| | VOCs | 190 | 0.08 | 0.37 |
| | Carbon Monoxide | 10 | 0.01 | 0.02 |
| | Formaldehyde[4] | 0.74 | 0.0003 | 0.0014 |
| | Acrolein[4] | 0.01 | 0.00001 | 0.00002 |
| | Acethaldehyde[4] | 0.46 | 0.0002 | 0.0009 |
| | Propionaldehyde[4] | 0.05 | 0.00003 | 0.0001 |

NOTES:

1 Process Description: Injection Molding; used highest value from 'general molding' and 'automotive parts molding'. Composite ABS resin from 3 different manufacturers.

2 Emission factors from "Sampling and Analysis of Fumes Evolved During thermal Processing of Polystyrene Resins", Dow Chemical, et al. obtained from Indiana DEM air permit for Primex Plastics Corp.

3 Unit of Measure = lb/MM lbs polymer processed

4 Hazardous Air Pollutants (HAPs)

**Scrap Recycle Line Transfers and Equipment Emissions (TPX5-9 Pneumatic and Mechanical Transfers)**

Process Rate

| | | |
|---|---|---|
| 200 | kg/hr | |
| 440.92 | lb/hr | |
| 0.23 | ton/hr | |
| 2,014.80 | ton/yr | (based on 8,760 hrs/yr) |

Emission Factors

| | | | |
|---|---|---|---|
| Transfer Points = | 0.80 | lb/ton | Source: Flying W Plastics Permit Application, Plant I.D. 021-00007, Dated May 2017. |
| Blending = | 0.80 | lb/ton | Source: Flying W Plastics Permit Application, Plant I.D. 021-00007, Dated May 2017. |

| ID | Transfer Capacities | | e | Control Device | | Emissions Uncontrolled | | Emissions Controlled | |
|---|---|---|---|---|---|---|---|---|---|
| | tph | tpy | lb/T | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| TPX5 (Pneumatic Transfer Trimmings to Outside Silo) | 0.23 | 2,015 | 0.80 | PN-VF | 95 | 0.18 | 0.81 | 0.01 | 0.04 |
| TPX6 (Pneumatic Transfer Grinder to Outside Silo) | 0.23 | 2,015 | 0.80 | PN-VF | 95 | 0.18 | 0.81 | 0.01 | 0.04 |
| TPX7 (Pneumatic Transfer Outside Dust Collector and Outside Silo to Doser/Extruder Feed Hopper) | 0.23 | 2,015 | 0.80 | PN-VF | 95 | 0.18 | 0.81 | 0.01 | 0.04 |
| TPX8 (Doser/Extruder Feed Hopper to Extruder) | 0.23 | 2,015 | 0.80 | FE | 80 | 0.19 | 0.81 | 0.04 | 0.17 |
| TPX9 (Pneumatic Transfer Pellet Cutter to Recycle Silo) | 0.23 | 2,015 | 0.80 | PN-VF | 95 | 0.19 | 0.81 | 0.01 | 0.05 |
| | | | | | PM/PM10/PM2.5 = | 0.93 | 4.04 | 0.08 | 0.34 |

| ID | Transfer Capacities | | e | Control Device | | Emissions Uncontrolled | | Emissions Controlled | |
|---|---|---|---|---|---|---|---|---|---|
| | tph | tpy | lb/T | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| XPS Grinder (X11S) | 0.23 | 2,015 | 0.80 | N | 0 | 0.18 | 0.81 | 0.18 | 0.81 |
| Doser/Extruder Feed Hopper (X14S) | 0.23 | 2,015 | 0.80 | N | 0 | 0.18 | 0.81 | 0.18 | 0.81 |
| Pellet Cutter (X16S) | 0.23 | 2,015 | 0.80 | N | 0 | 0.18 | 0.81 | 0.18 | 0.81 |
| | | | | | PM/PM10/PM2.5 = | 0.55 | 2.42 | 0.55 | 2.42 |
| | | | | | Total PM/PM10/PM2.5 = | 1.48 | 6.46 | 0.63 | 2.76 |

**Lamination Line Emissions (X7S)**

Lamination can occur via two methods. The first is heating of the XPS boards to cause them to become tacky and then the laminate will adhere to the board. There is no fuel used in the heating of the XPS boards. The second is glue to actually bond the laminate to the XPS board. Emissions from heating is estimated on the same basis of extrusion of XPS board utilizing the same process capacity of the XPS production line. Glue lamination emissions are based on the glue used to laminate. The emissions estimate below assumes that the line is operating at maximum rate hourly and yearly and that the entire amount of MDI is released (conservative estimate).

**Heat Lamination**

| | | |
|---|---|---|
| Line Capacity = | 550 | kg/hr |
| | 1,212.54 | lb/hr |
| | 0.61 | tph |
| | 0.00121254 | MM lb/hr |
| Operating Hours = | 8,760 | hrs/yr |
| Yearly Operating Rate = | 10,621,850 | lb/yr |
| | 10.6219 | MM lbs/yr |
| | 5,343.60 | ton/yr |

| Polymer Used | Pollutant | Emission Factor[2,3] | Emission | |
|---|---|---|---|---|
| | | | lb/hr | tpy |
| Polystyrene[1] | PM/PM10/PM2.5 | 53.3 | 0.06 | 0.28 |
| | VOCs | 190 | 0.23 | 1.01 |
| | Carbon Monoxide | 10 | 0.01 | 0.05 |
| | Formaldehyde[4] | 0.74 | 0.0009 | 0.0039 |
| | Acrolein[4] | 0.01 | 0.00001 | 0.0001 |
| | Acethaldehyde[4] | 0.46 | 0.0006 | 0.0024 |
| | Propionaldehyde[4] | 0.05 | 0.0001 | 0.0003 |

NOTES:

1 Process Description: Injection Molding; used highest value from 'general molding' and 'automotive parts molding'. Composite ABS resin from 3 different manufacturers.

2 Emission factors from "Sampling and Analysis of Fumes Evolved During thermal Processing of Polystyrene Resins", Dow Chemical, et al. obtained from Indiana DEM air permit for Primex Plastics Corp. Attached.

3 Unit of Measure = lb/MM lbs polymer processed

4 Hazardous Air Pollutants (HAPs)

**Glue Lamination (MDI is a VOC and HAP) (X7S)**

| | | |
|---|---|---|
| Glue Dosage = | 100 | gr/m2 |
| | 0.0143 | lb/m2 |
| Maximum Width of Board = | 1,280 | mm |
| | 1.28 | m |
| Line Speed = | 20 | m/min |
| Lamination Area = | 1,536 | m2/hr |
| | 8,760 | hrs/yr |
| | 13,455,360 | m2/yr |
| Glue Usage = | 21.94 | lb/hr |
| | 96.11 | ton/yr |
| MDI % = | 0.1 | percent |
| | 0.022 | lb/hr |
| | 0.096 | ton/yr |

| ID | Transfer Capacities | | e | Control Device | | Emissions Uncontrolled | | Emissions Controlled | |
|---|---|---|---|---|---|---|---|---|---|
| | tph | tpy | lb/T | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| Trimmer (X8S) | 0.61 | 5,343.60 | 0.81 | DC | 95 | 0.49 | 2.16 | 0.02 | 0.11 |
| | | | | | | | | | |
| | | | | | PM/PM10/PM2.5 = | 0.49 | 2.16 | 0.02 | 0.11 |
| | | | | | Total PM/PM10/PM2.5 = | 0.49 | 2.16 | 0.02 | 0.11 |

By: PEW
Date: 1/10/2024

Checked By: ABK
Date: 1/12/2024

**Vehicle Activity for XPS Production (PM/PM10/PM2.5) (X19S)**

| | Transport Trucks | |
|---|---|---|
| Usage Rate of Materials (ton/hr) = | 0.61 | |
| (ton/yr) = | 5,310.93 | |
| Approximate Load Weight (tons) = | 20 | |
| Approximate Vehicle Weight (tons) = | 20 | |
| Vehicles Per Hour = | 2 | Maximum (Estimate) |
| Vehicles Per Year = | 797 | Based on total throughput delivered and removed multiplied by 1.5 for other trucking. |
| Mean Vehicle Weight (tons) = | 30 | |
| Trip Length (ft) = | 1,000 | |
| Round Trip Distance (mi) = | 0.38 | |

**Unpaved Haulroads**

Emission Equation AP-42 Section 13.2.2, Unpaved Roads (11/06), where:

$e = k [(s/12)^a (W/3)^b] [(365-p)/365]$

e = Emission factor, pounds per vehicle-mile-traveled, (lb/VMT)

| | PM | $PM_{10}$ | $PM_{2.5}$ | |
|---|---|---|---|---|
| k = | 4.9 | 1.5 | 0.15 | dimensionless, particle size multiplier |
| sL = | 10 | 10 | 10 | surface material silt content $(g/m^2)^{(2)}$ |
| W = | 30 | 30 | 30 | tons, mean vehicle weight |
| a = | 0.7 | 0.9 | 0.9 | constant |
| b = | 0.45 | 0.45 | 0.45 | constants |
| p = | 148 | 148 | 148 | no. days/year with 0.01 in of rain |
| e = | 7.23 | 2.13 | 0.21 | lb/VMT |

Rounding to 2

| Pollutant | No. of Vehicles | | Miles Per Trip | Control Device | | Emissions | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Uncontrolled | | Controlled | |
| | Per Hour | Per Year | (mi) | Type | Effic(%) | (lb/hr) | (tpy) | (lb/hr) | (tpy) |
| PM | 2 | 797 | 0.38 | None | 0 | 5.50 | 1.09 | 5.50 | 1.09 |
| $PM_{10}$ | 2 | 797 | 0.38 | None | 0 | 1.62 | 0.32 | 1.62 | 0.32 |
| $PM_{2.5}$ | 2 | 797 | 0.38 | None | 0 | 0.16 | 0.03 | 0.16 | 0.03 |

# ATTACHMENT O

# MONITORING, RECORDKEEPING, REPORTING, TESTING PLANS

# ATTACHMENT O

## MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

TeMa North America, LLC plans to follow the monitoring, recordkeeping, reporting, and testing required by the issued permit.

# ATTACHMENT P

# PUBLIC NOTICE

# LEGAL ADVERTISEMENT

## AIR QUALITY PERMIT NOTICE
## Notice of Application

Notice is given that TeMa North America, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a construction and modification permit to install an XPS Board Production System at their existing facility located at 395 Steeley Way, Kearneysville, Jefferson County, West Virginia. The latitude and longitude coordinates are: 39.356546 and -77.870943.

The applicant estimates the proposed revisions will increase the potential to discharge the following Regulated Air Pollutants: PM of 5.82 tons per year (tpy), PM10 of 5.05 tpy, PM2.5 of 4.76 tpy, VOC at 2.48 tpy, CO of 0.13 type, formaldehyde of 0.00929 tpy, Acrolein of 0.00013 tpy, Acethaldehyde of 0.00577 tpy, Propionaldehyde of 0.00063 tpy, MDI of 0.096 tpy for total HAPs of 0.11 tpy.

Startup of operation is planned to begin on or about the 15th day of May, 2024. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, Extension 41281, during normal business hours.

Dated this the (PLEASE INSERT DATE) day of January 2024.

By: TeMa North America, LLC
Lorenzo Spagna
Chief Executive Officer
395 Steeley Way
Kearneysville, West Virginia 25430

# APPENDIX

# INFORMATION ON NEW PRODUCTION LINES

# GENERAL

This document describes the project of installing 4 new production lines in the new building of TeMa NA.

The 4 lines are:

1) XPS Extrusion Line
2) XPS Cutting Line
3) XPS Recycling Line
4) Lamination Line

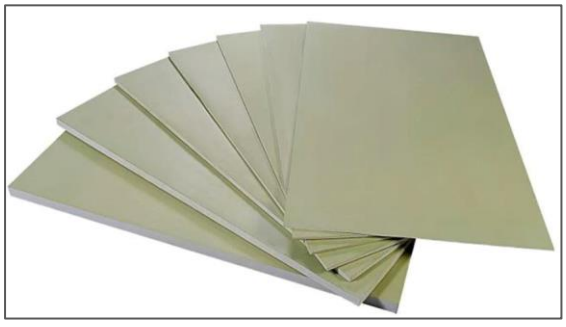
The description of each line will include the following elements:
- The raw materials
- The finished product
- The utilities
- The emissions
- The layout
- The process

The lines will produce:

1. XPS Boards

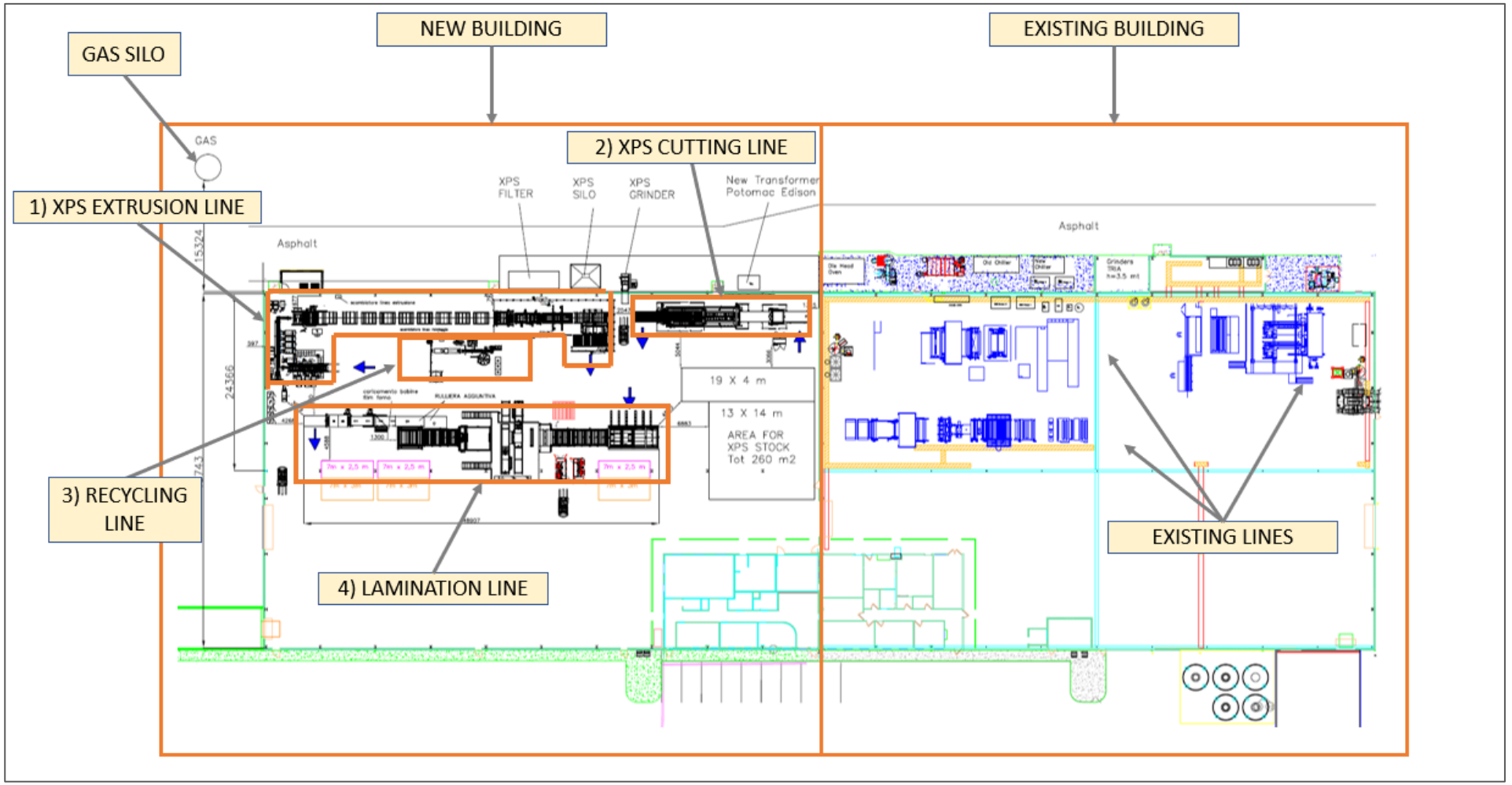

***XPS Boards***

2. XPS Panel coupled with a plastic membrane

***XPS Panels coupled with a plastic membrane***

Plant Layout



# 1) XPS EXTRUSION LINE

The line deals with the extrusion of XPS, from granules to XPS boards.

**Material data (INPUT)**

| | **POLYMER: GPPS (Virgin or Recycled)** | **GAS HFC 152** | **Additives**<br>- **Flame retardant**<br>- **Color masterbatch**<br>- **Nucleating agent**<br>- **Lubricator** |
|---|---|---|---|
| | | | |
| **State** | Solid | Liquid | Solid |
| **Stock** | Octabins or big bagsinside / outside | 1 Tank external 25 m3 | Bin(s) internal |
| **Refill** | By Truck | By Tanker | Manually |
| **Maintenance of stock & piping system** | / | Externally by certified company | / |
| **Consumption** | 10 ton / day | 10 ton / month | TBD |

**Product data (OUTPUT)**

- Product: Polystyrene foam boards, Board width 1280 [mm]
- Board thickness: 60 [mm]
- Obtainable density: 30 – 50±2 [kg/m3]
- Compressive strength: 150-500 [kpa]

**Factory requirements**

- Footprint: 42 x 10 x H8 [m]
- Electricity: 300 [KVA]; 380 [V]; 60 [Hz]
- Chilled Water: 4-6 [bar]; 10-25 [C]; Free from solid matters, inlet filtered;
- Compressed Air: 6 [bar], 3.5 [m3/min]

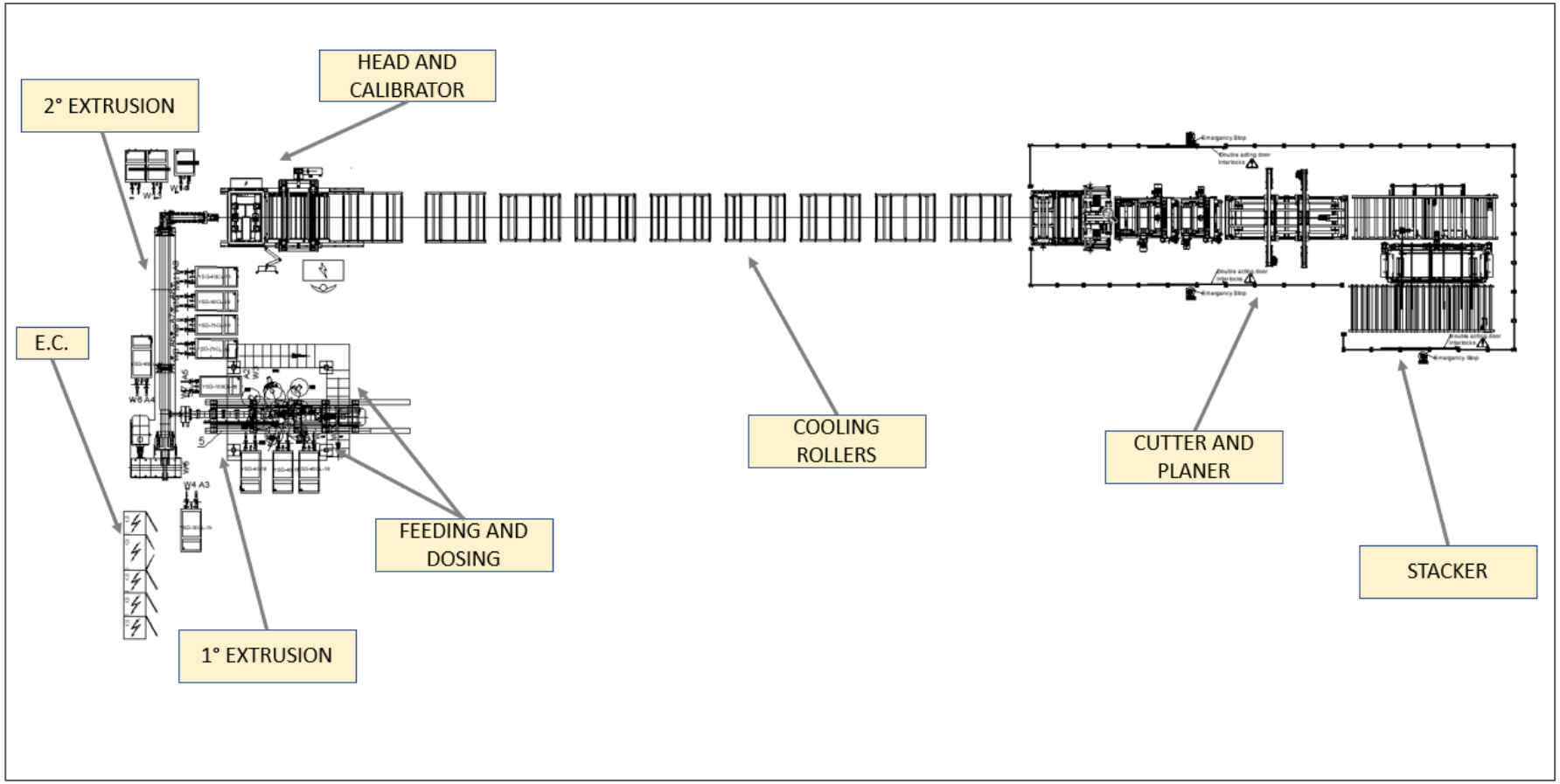
**Performance data**

Capacity of the line: 350 – 550 kg/h

**Utilities**

XPS Dust Filter with chimney
XPS scraps Silo: capacity 60 [m3]
Chiller: cooling capacity 250 [kW] or 70 ton

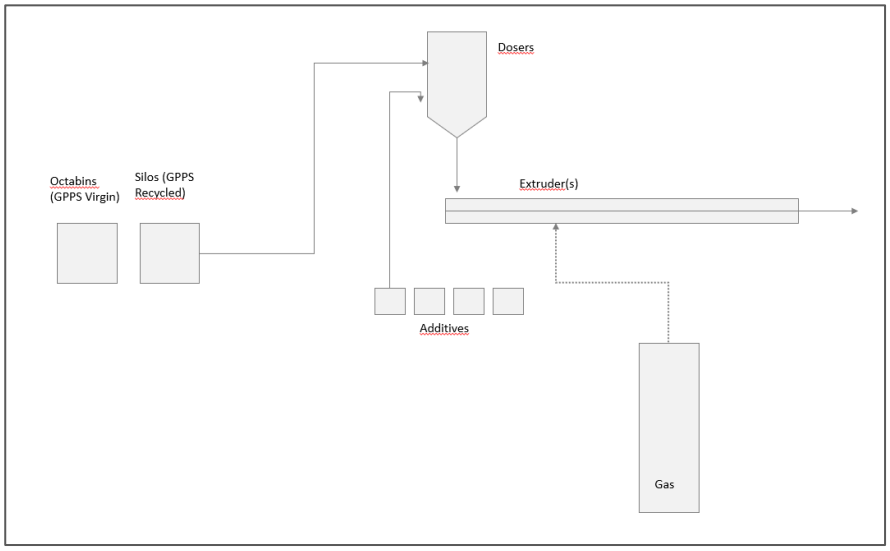
Extrusion Line Layout



Process description

**Feeding and dosing**
Granules are drawn from octabins/big bags and fed into the dosing units.

Gas is pumped from the external storage tank to the line.




**1st Extrusion**: Granule crushing and melting takes place. After 3 heating zones, expanding gas is inserted inside the extruder.

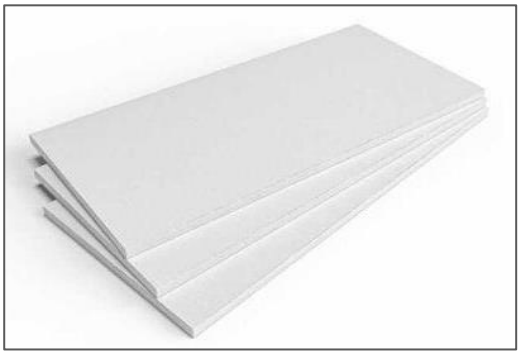
**2nd Extrusion**: Homogenization of the foam takes place

**Extrusion Head and Calibrator**: The foam is expanded out of die head and is formed to the desired height by the calibrator.

**Cooling rollers**: The roller conveyor is used for cooling the material

**Cutting Unit**: Longitudinal trimming, surface sanding and cross cutting occurs

**Stacker**: XPS panels are unloaded from the line.



## 2) XPS CUTTING LINE

The line deals with the cutting of XPS boards to the desidered panel dimensions.

**Material data (INPUT)**

XPS Boards 60 mm, produced by Line 1

**Product data (OUTPUT)**

- Product: XPS panels
- Panels thickness: 6 – 25 mm (90 % of panels will be 11.5 mm thickness)

**Factory requirements**

- Footprint: 24.4 x 3.9 x H5.4 [m]
- Electricity: 74 KVA; 400 V; 50/60 Hz
- Compressed Air: 6 bar, 60 m3/min

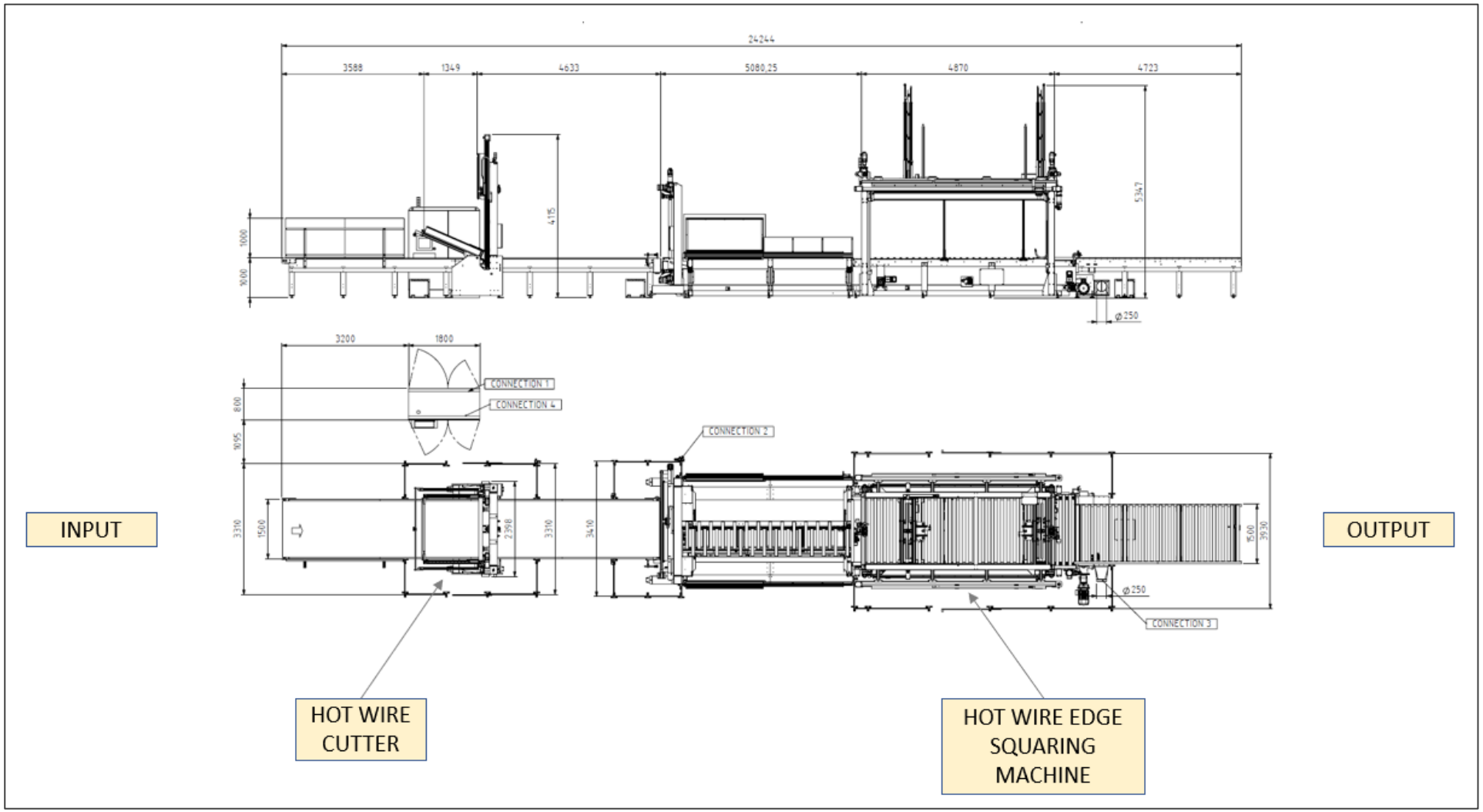
**Performance data**

Capacity of the line: 0.6 m / min

**Utilities**

XPS Dust Filter with chimney (same Line 1)
XPS Silo (same Line 1)

XPS Cutting Line Layout



Process Description.

The line deals with the cutting of XPS boards. The cutting is done by hot wire system.

**Input:** 60 mm thick XPS boards.
The panels are manually loaded onto the roller conveyor.

**Hotwire Cutter**: panel thickness cutting takes place.

**Hotwire Edge Squaring Machine**: panels are trimmed and squared on all 4 sides.

**Output:** XPS panels cut to the desired thickness.
The panels are manually unloaded from the exit roller conveyor.

# 3) XPS RECYCLING LINE

The line deals with the regeneration of XPS waste into XPS granules.

**Material data (INPUT)**

XPS grounds and XPS Dust (0-2 cm)

**Product data (OUTPUT)**

- Product: XPS granules
- Pellets dimensions: 3 mm

**Factory Requirements**

- Footprint: 10 x 5 x H4.6 [m]
- Electricity: included in the data of Line 1
- Compressed Air: included in the data of Line 1
- Chilled Water: included in the data of Line 1
- Cooling water for granules

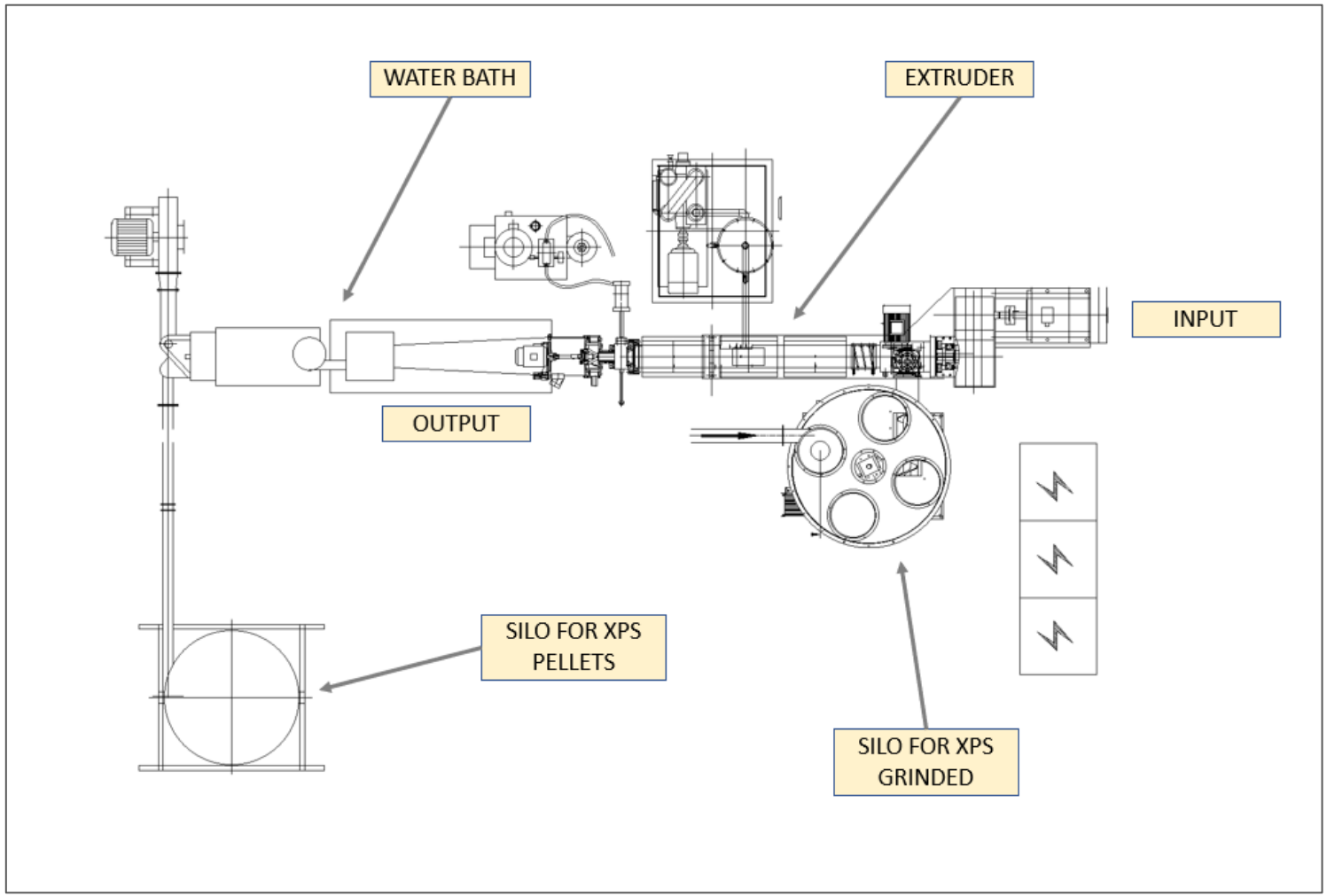
**Performance data**

Capacity of the line: 150-200 [kg / hr]

**Utilities**

XPS Dust Filter with chimney (same Line 1)
XPS Silo (same Line 1)
Chiller (same Line 1)
Water closed circuit for granules
XPS Grinder

XPS Recycling Line Layout



Process description

**Input**: the Silo of the line receives XPS grounds and dust from the external silo

**Extruder**: XPS crushing and melting take place.
At the end of the extruder, the XPS material is cut into granules.

**Water Bath**: Cooling of the XPS granule occurs.

The granule is dryed and transported into XPS Extrusion Line 1 big bags..

# 4) LAMINATION LINE

The line deals with the lamination of XPS panels with rolls of TNT/plastic material.

**Material data (INPUT)**

XPS Panels 6-50 [mm]

"Facer membrane": Plastic + TNT
- thickness 0,75 [mm]
- width 1200 [mm]
- roll weight max 750 kg each

Reactive polyurethane glue
- use temperature 120 [C]
- dosage 100 gr / m2

Wrapping Film: thickness 50/60 micron, width 1400 mm

**Product data (OUTPUT)**

- Product: XPS Panels glued with "facer membrane"
- Panel thickness: 6 – 50 [mm]

**Performance data**

Capacity of the line: 20 [m / min]

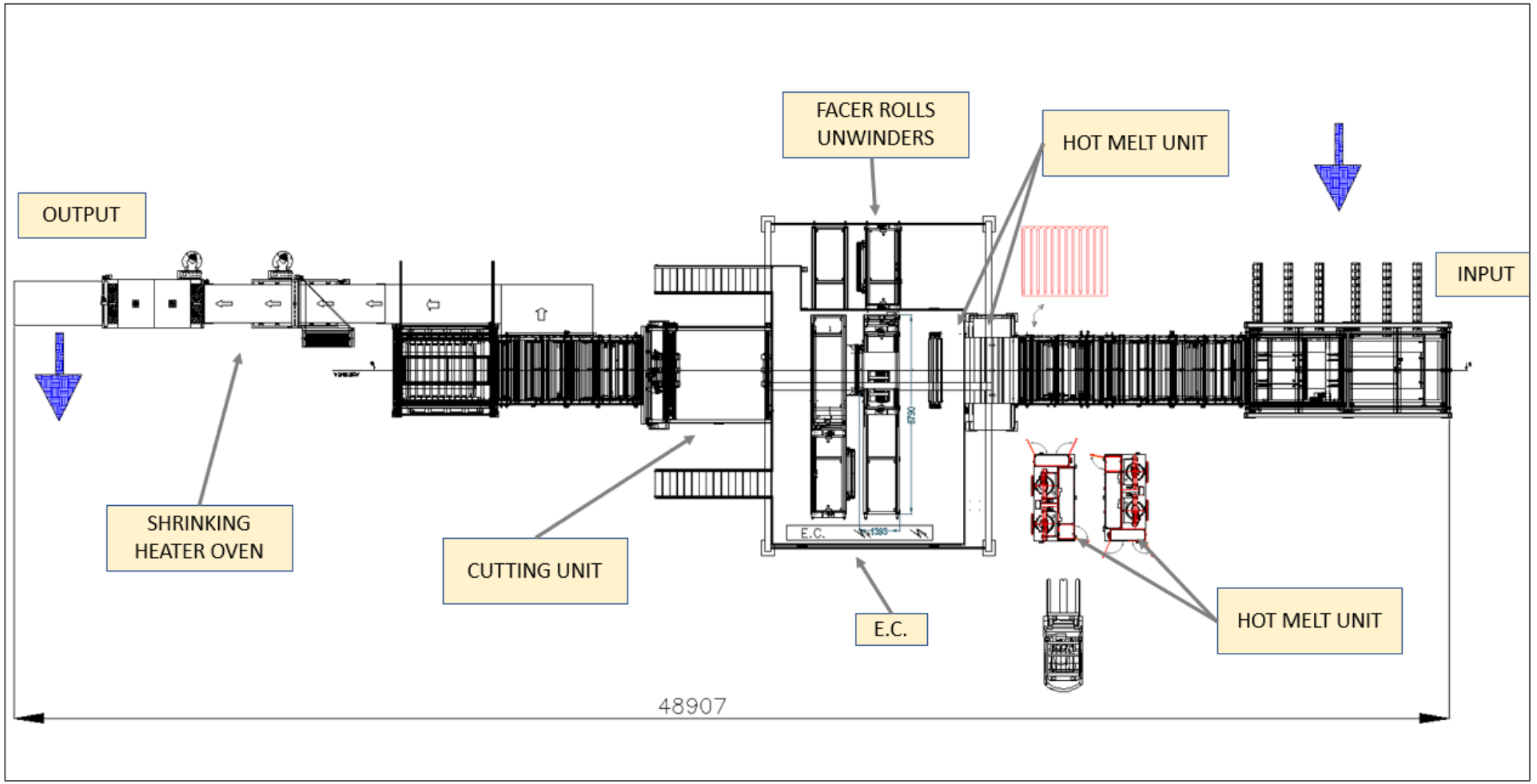
**Factory Requirements**

- Footprint: 47 x 5.8 x H7 [m]
- Electricity: 300 [KVA]; 400 [V]; 50/60 [Hz]
- Compressed Air: 6 [bar]

**Utilities**

Facer Membrane Grinder
Dust Extraction
Exhaust system with chimney (same Line 1)
Facer rolls handling system

Coupling Line Layout



Process description

**Input**: Loading of XPS panels which have been cut in Line 2.
The panels are loaded onto the stackers.

**Hot Melt Unit**: Composed of drum melters, roller coater, calender.

- Drum melters: Glue melting occurs.
- Roller Coater: Coating of glue on XPS panels takes place.
- Calender: The lamination of the XPS panels with the membrane facer occurs

**Facer Rolls Unwinder**: The unwinding of Facer's rolls takes place.

The facer membrane is coupled to the panels.

**Cutting Unit:** Panel cross cutting takes place.

**Shrinking Heater Oven:** Panels are stacked in packs, height 200 mm.
The panel packs are heat shrink wrapped.

**Output:** Packed panel are unloaded from the roller conveyor and stacked on pallets for shipment.

# UTILITIES

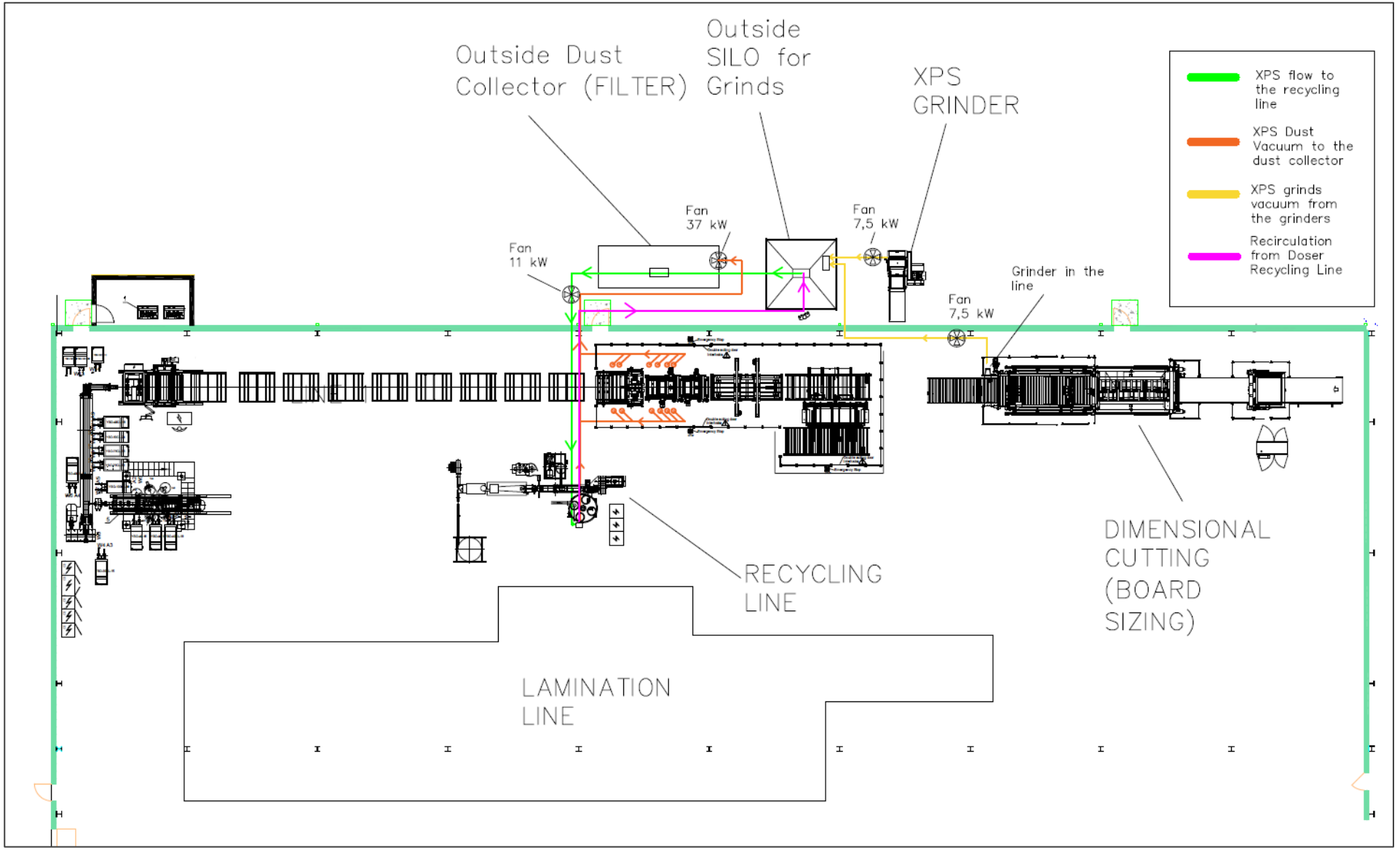
| | |
|---|---|
| New Air Compressor | 55 kW |
| New Water Chiller | 250 kW cooling capacity (70 tons) |
| New XPS Dust Filter | 288 m2 |
| New XPS Dust Silo | 60 m3 |
| New XPS Dust Extraction fan | 22.000 m3/h |
| New Electrical Transformer | 2500 KVA |
| Forklifts | |
| Wrapping machine | |
| New GAS TANK | 25 m3 - 6565 water gallons |

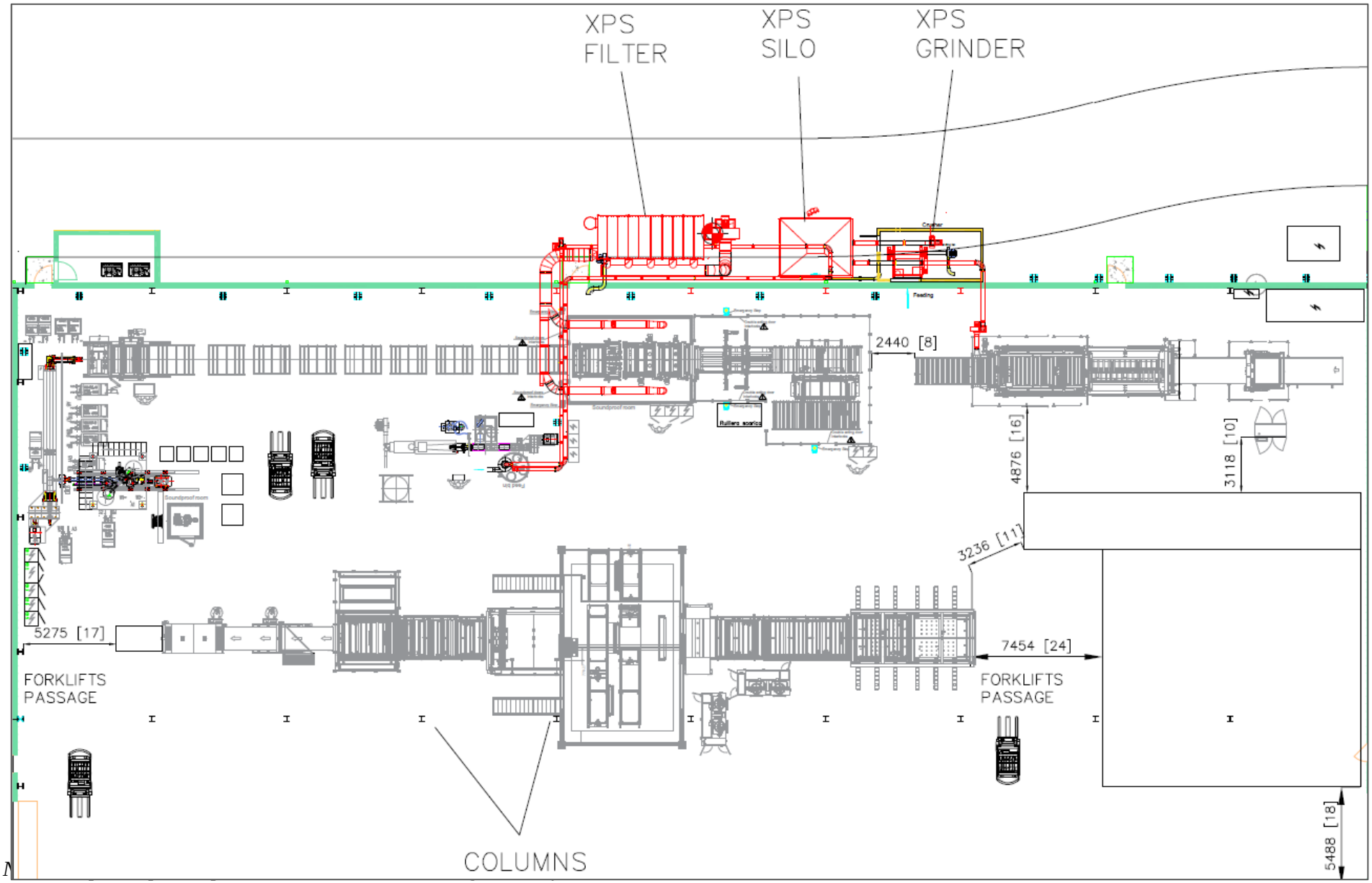
# XPS DUST AND SCRAPS TREATMENT

There will be installed a system of piping and equipments for the XPS Dust and Scraps treatment and recycling.
The goal is to have a close loop.

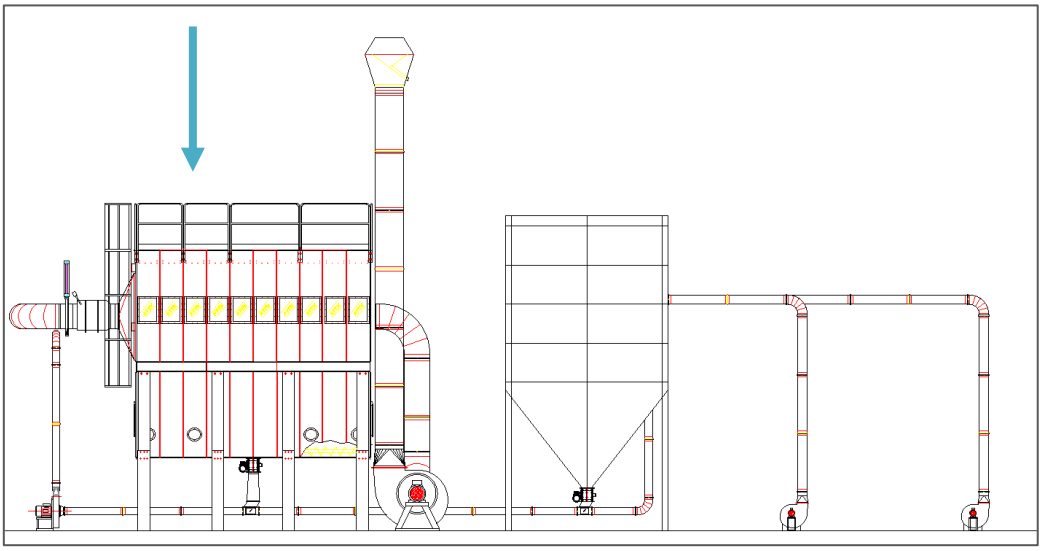
The system is composed by:

- Pipes and fans for the XPS dust and scraps pneumatic transport
- XPS Dust collector filter (outside) for dust storage and filtration
- XPS Silo for scraps storage (outside)
- XPS grinder for boards grinding




XPS FILTER
XPS SILO
XPS GRINDER
2440 [8]
4876 [16]
3118 [10]
3236 [11]
5275 [17]
7454 [24]
FORKLIFTS PASSAGE
FORKLIFTS PASSAGE
COLUMNS
5488 [18]

# XPS DUST FILTER



Overall dimensions: 2450 x 7000 x H.8900 mm.

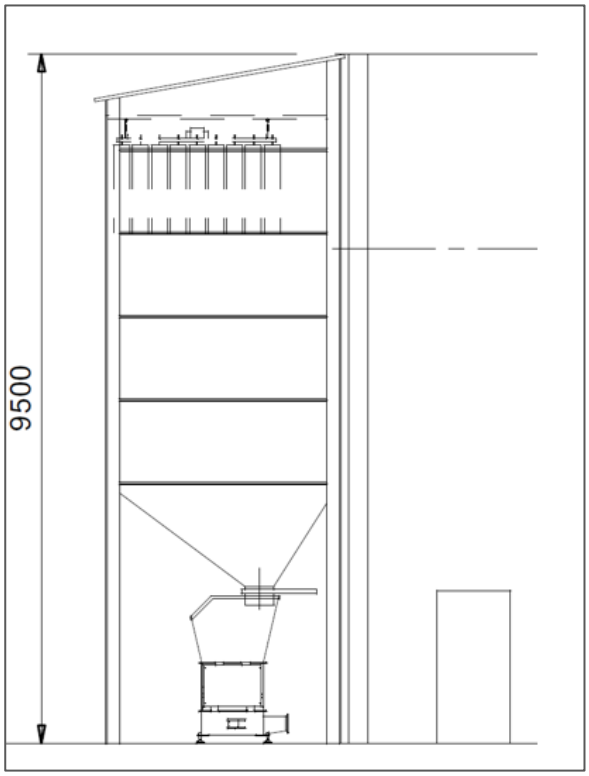
**Description**

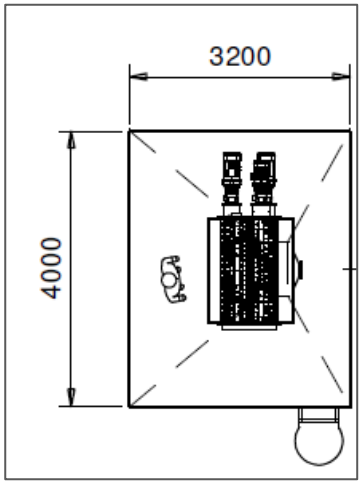
- Self-cleaning filter station filtration capacity 21,850 mch,
- filtering area total 288 square meters,
- filtration speed 1.26 mt/sq /min

The air to be treated enters the filter through a large settling chamber, for direct abatement of the coarsest particles; the chamber is placed along the entire length of the filter so that the filter bags can work uniformly.

| | |
|---|---|
| Filter Station | • Self-cleaning filter station filtration capacity 21,850 mch,<br>• filtering area total 288 square meters,<br>• filtration speed 1.26 mt/sq /min<br><br>The air to be treated enters the filter through a large settling chamber, for direct abatement of the coarsest particles; the chamber is placed along the entire length of the filter so that the filter bags can work uniformly. |
| Fan | • Single inlet centrifugal fan,<br>• 37 kW<br>• Total air pressure: 350 kgf/m2 Total Pressing<br>• Noise: 77 dba |
| Chimney | • Ejection chimney<br>• diameter 740 mm<br>• height 15 mt |
| Blowers | • 7,5 kW<br>• 11 kW |
| Fire-fighting system | • Internal fire suppression system at the filter station,<br>• 2'' main manifold and set of side detachments in 1'' pipe for 3/4 spray nozzle connection. |
| Probes and detectors | • Probe control and continuous monitoring of dust output<br>• Thermal detector for internal filter temperature control type GMST101 EX version,<br>• No. 1 bell horn |

# XPS SCRAPS SILO

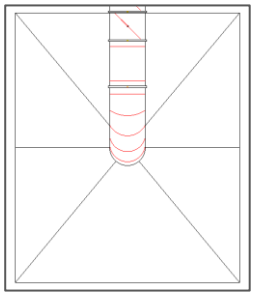



- Overall dimensions: H 9,5 mt x 4 x 3,2 mt
- Minimum and maximum level sensors

# FUMES SUCTION SYSTEM

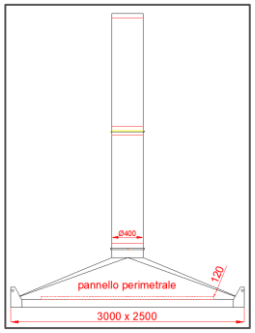
There will be installed a system of piping and hoods for the fumes suctions.



The system is composed by:

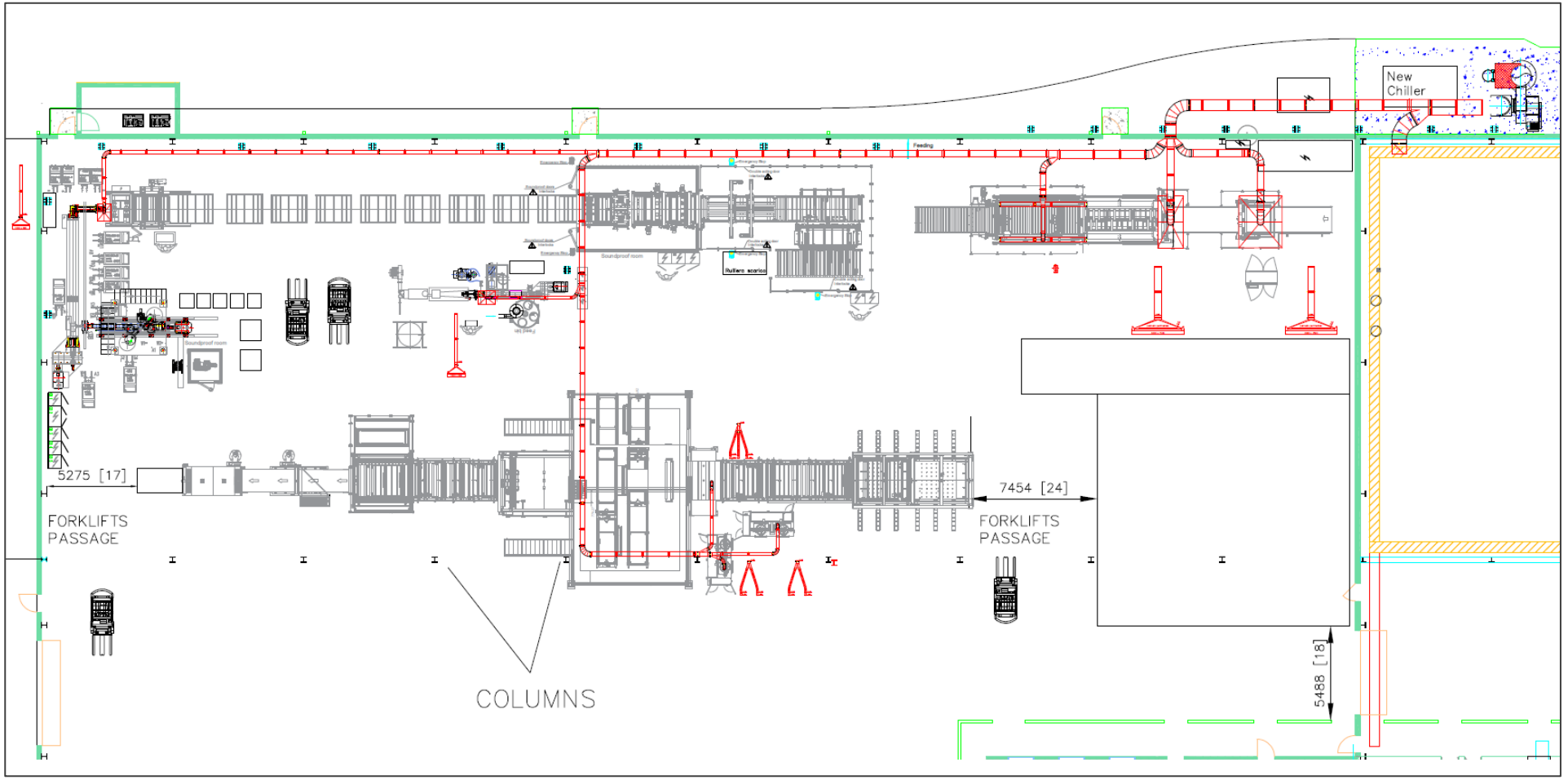
- Pipes
- Hoods placed on the source of fumes points

The piping will be connected to the existing chimney.




The fumes are generated by:

- XPS Extrusion Line: GPPS is melted by the extruder (heated by resistances) and therefore GPPS fumes are produced.
- XPS Recycling Line: XPS scraps are melted by recycling line extruder and therefore XPS fumes are produced.
- XPS Cutting Line: XPS boards are cutted by hot wires system.
- Lamination Line: Glue is heated and melted to bond XPS panels and the “facer” membrane.



## COUPLED PANELS TRIMMING

In the lamination line, once XPS panels are coupled with the “facer” membrane, they are milled for the final dimensions.

The dust and the scraps are vacuumed and collected in the existing Dust Collector.

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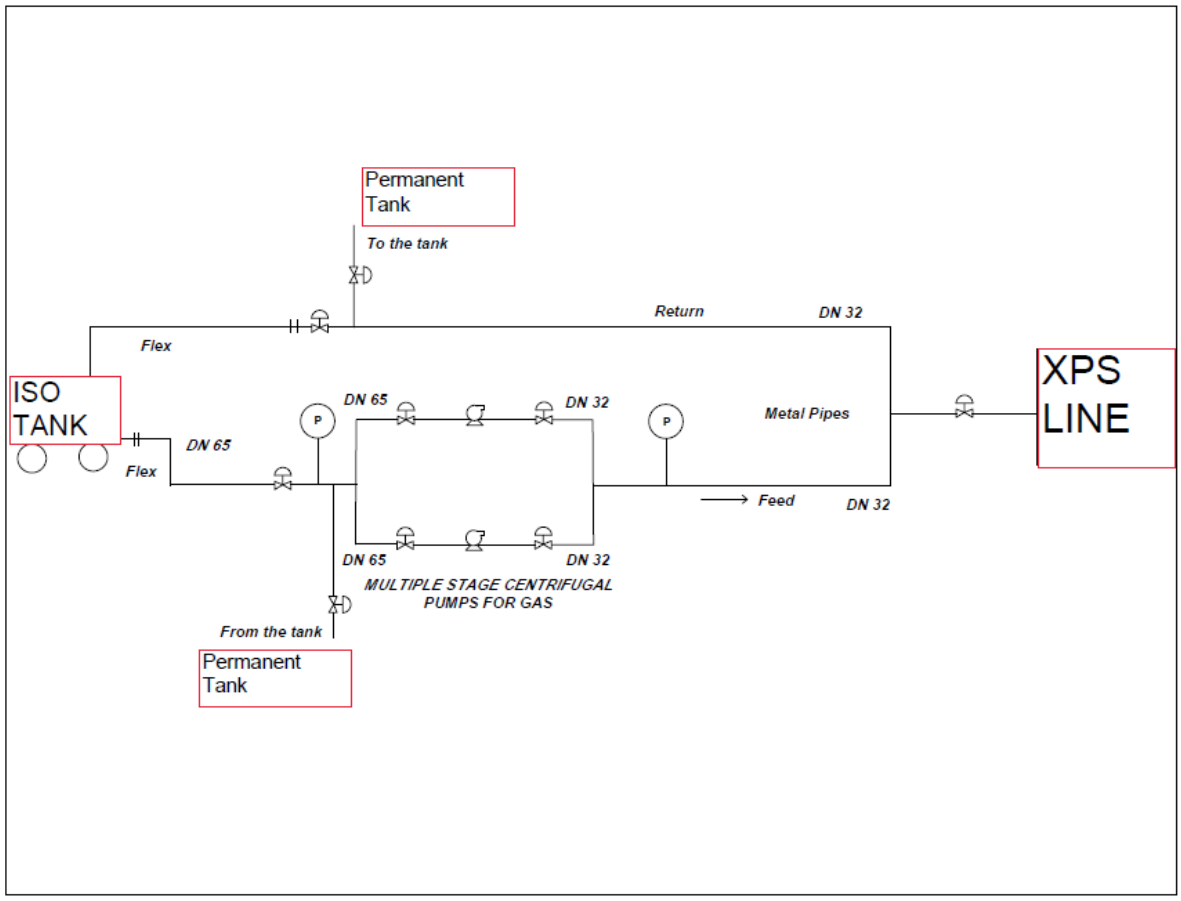
# GAS FEEDING SYSTEM

The gas system will be set up to have both an isotank and a permanent tank




*Iso Tank example*

*Permanent Tank example*


25 m3 – 6565 water gallons

| | |
|---|---|
| STORAGE TANK | • One new 6,565 WG (water gallon) carbon steel Horizontal Storage Tank, 84 in. diameter, 26 ft.-6 in. O.A.L.<br>• The tank is designed, constructed and inspected to meet A.S.M.E. code standards for safety and applicability.<br>• The tank is designed for 250 PSIG working pressure + full vacuum |
| ACCESSORIES | • combination pressure and outage gauge<br>• combination excess flow check/ fusible link shut-off valves<br>• all pneumatic passive emergency shutdown system<br>• ASME safety relief valves set for 250 psig<br>• XP rated switch for monitoring fusible link/pneumatic status |
| PUMPING SYSTEM | |