



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008
This SDS is for generic information purposes and does not reflect required country specific information for OEL

FIRE BOND FOAM PRO 2K
Supersedes Date: 04-Jan-2022

Revision date 30-Mar-2023
Revision Number 2

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

1.1. Product identifier

Product Name FIRE BOND FOAM PRO 2K

Other means of identification

Pure substance/mixture Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Sealant Insulation foams

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Company Name

Bostik AB
Strandbadsvaegen 22
PO Box 903
25109 Helsingborg, Sweden
Tel: +46 42 19 50 00
Fax: +46 42 19 50 20

E-mail address SDS.box-EU@bostik.com

1.4. Emergency telephone number

Emergency Telephone

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

| | |
|---|---------------------------|
| Skin corrosion/irritation | Category 2 - (H315) |
| Serious eye damage/eye irritation | Category 2 - (H319) |
| Respiratory sensitisation | Category 1 - (H334) |
| Skin sensitisation | Category 1 - (H317) |
| Carcinogenicity | Category 2 - (H351) |
| Specific target organ toxicity — single exposure | Category 3 - (H335) |
| Category 3 Respiratory irritation | |
| Specific target organ toxicity — repeated exposure | Category 2 - (H373) |
| Aerosols | Category 1 - (H222, H229) |

2.2. Label elements

Contains Diphenylmethane-diisocyanate, isomers and homologues

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Signal word
Danger

Hazard statements

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
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
H222 - Extremely flammable aerosol
H229 - Pressurised container: May burst if heated

Precautionary Statements - EU (§28, 1272/2008)

P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P211 - Do not spray on an open flame or other ignition source
P251 - Do not pierce or burn, even after use
P260 - Do not breathe dusts or mists
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up
P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
P501 - Dispose of contents/ container to an approved waste disposal plant

Special provisions concerning the labelling of certain mixtures

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. As from 24 August 2023 adequate training is required before industrial or professional use.

Additional information

This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

During transportation by car the cans should stand upright in the cargo space. In case of insufficient ventilation and/or through use, the formation of a explosive/highly flammable mixture is possible. The mentioned hazards are valid for the non-reacted content of the can or of the fresh foam. When foaming the propellants are highly flammable. May be harmful if swallowed.

PBT & vPvB

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

| Chemical name | EC No (EU Index No). | CAS No. | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | REACH registration number |
|---|---|--------------|---|---|----------|----------------------|---------------------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane 10 - <20 % | 807-935-0 | 1244733-77-4 | Acute Tox. 4 (H302) Aquatic Chronic 3 (H412) | - | - | - | 01-2119486772-26-XXXX |
| Diphenylmethane-diisocyanate, isomers and homologues 10 - <20 % | 618-498-9 | 9016-87-9 | STOT SE 3 (H335) STOT RE 2 (H373) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Carc. 2 (H351) Acute Tox. 4 (H332) | STOT SE 3 :: C>=5% Skin Irrit. 2 :: C>=5% Eye Irrit. 2 :: C>=5% Resp. Sens. 1 :: C>=0.1% | - | - | [7] |
| Isobutane 5 - <10 % | (601-004-00-0) (601-004-01-8) 200-857-2 | 75-28-5 | Flam. Gas 1 (H220) Press. Gas (H280) | - | - | - | 01-2119485395-27-XXXX |
| Dimethyl ether 5 - <10 % | (603-019-00-8) 204-065-8 | 115-10-6 | Flam. Gas 1 (H220) Press. Gas (H280) | - | - | - | 01-2119472128-37-XXXX |
| Ethylene glycol 5 - <10 % | (603-027-00-1) 203-473-3 | 107-21-1 | STOT RE 2 (H373) Acute Tox. 4 (H302) | - | - | - | 01-2119456816-28-XXXX |

Full text of H- and EUH-phrases: see section 16

NOTE [7] - No registration number is given for this substance because it is a polymer exempted from registration according to the provisions of Article 2(9) of REACH. All monomers or other substances within the polymer are registered or exempt from registration

Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name | EC No (EU Index No) | CAS No | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|--------------|-----------------|-------------------|---|--|--------------------------------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane | 807-935-0 | 1244733-77-4 | 632 | - | - | - | - |
| Diphenylmethane-diisocyanate, isomers and homologues | 618-498-9 | 9016-87-9 | - | - | 1.5 | - | - |
| Isobutane | (601-004-00-0) (601-004-01-8) 200-857-2 | 75-28-5 | - | - | - | - | - |

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| Chemical name | EC No (EU Index No) | CAS No | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|-----------------|-----------------------------|----------|-----------------|-------------------|---|--|--------------------------------------|
| Dimethyl ether | (603-019-00-8) 204-065-8 | 115-10-6 | - | - | - | - | - |
| Ethylene glycol | (603-027-00-1) 203-473-3 | 107-21-1 | 500 | - | - | - | - |

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Notes

See section 16 for more information

| Chemical name | Notes |
|---------------------------|-------|
| Isobutane - 75-28-5 | C,U |
| Dimethyl ether - 115-10-6 | U |

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---|--|
| General advice | Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. |
| Inhalation | Remove to fresh air. May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical attention. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists. |
| Skin contact | May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes. Do not use solvents or thinners to dissolve the material. |
| Ingestion | May produce an allergic reaction. Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention. |
| Self-protection of the first aider | Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information. |

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

| | |
|-----------------|--|
| Symptoms | May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. |
|-----------------|--|

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

| | |
|------------------------|--|
| Note to doctors | May cause sensitisation in susceptible persons. Treat symptomatically. |
|------------------------|--|

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO₂). Water spray.

Unsuitable extinguishing media Full water jet. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated. Product is or contains a sensitiser. May cause sensitisation by inhalation. May cause sensitisation by skin contact.

Hazardous combustion products Carbon oxides. Carbon monoxide. Carbon dioxide (CO₂). Phosphorus oxides. Nitrogen oxides (NO_x). Hydrogen cyanide. Bromine compounds. Isocyanates.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Avoid breathing dust/fume/gas/mist/vapours/spray.

Other information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment Keep out of drains, sewers, ditches and waterways. Stop leak if you can do it without risk. Dyke far ahead of spill to collect run-off water. Flood with water to complete polymerization and scrape off floor.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Use spark-proof tools and explosion-proof equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Keep in an area equipped with sprinklers. Do not puncture or incinerate cans. Contents under pressure. In case of rupture. Avoid breathing vapours or mists. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Protect from sunlight. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store locked up. Keep out of the reach of children. Keep/store only in original container. Store in a dry place. Store in a closed container.

7.3. Specific end use(s)

Specific use(s)

Sealant. Insulation foams.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Other information Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Only European Community Occupational Exposure Limits will be shown in this document. Please refer to regional SDS for further information.

| Chemical name | European Union |
|-----------------------------|--|
| Dimethyl ether 115-10-6 | TWA: 1000 ppm TWA: 1920 mg/m ³ |
| Ethylene glycol 107-21-1 | TWA: 20 ppm TWA: 52 mg/m ³ STEL: 40 ppm STEL: 104 mg/m ³ * |

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Derived No Effect Level (DNEL) No information available

| Derived No Effect Level (DNEL) | | | |
|---|----------------|--------------------------------|---------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4) | | | |
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| worker Long term Systemic health effects | Inhalation | 8.2 mg/m ³ | |
| worker Short term Systemic health effects | Inhalation | 22.6 mg/m ³ | |
| worker Long term Systemic health effects | Dermal | 2.91 mg/kg bw/d | |

| Dimethyl ether (115-10-6) | | | |
|--|----------------|--------------------------------|---------------|
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| worker Long term Systemic health effects | Inhalation | 1894 mg/m ³ | |

| Ethylene glycol (107-21-1) | | | |
|--|----------------|--------------------------------|---------------|
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| worker Long term Systemic health effects | Dermal | 106 mg/kg bw/d | |
| worker Long term Systemic health effects | Inhalation | 35 mg/m ³ | |

| Derived No Effect Level (DNEL) | | | |
|---|----------------|--------------------------------|---------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4) | | | |
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| Consumer Long term Systemic health effects | Inhalation | 1.45 mg/m ³ | |
| Consumer Short term Systemic health effects | Inhalation | 5.6 mg/m ³ | |
| Consumer Long term Systemic health effects | Dermal | 1.04 mg/kg bw/d | |
| Consumer Long term Systemic health effects | Oral | 0.52 mg/kg bw/d | |
| Consumer Short term Systemic health effects | Oral | 2 mg/kg bw/d | |

| Dimethyl ether (115-10-6) | | | |
|--|----------------|--------------------------------|---------------|
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| Consumer Long term Systemic health effects | Inhalation | 471 mg/m ³ | |

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| Ethylene glycol (107-21-1) | | | |
|--|----------------|--------------------------------|---------------|
| Type | Exposure route | Derived No Effect Level (DNEL) | Safety factor |
| Consumer Long term Systemic health effects | Dermal | 53 mg/kg bw/d | |
| Consumer Long term Local health effects | Inhalation | 7 mg/m ³ | |

Predicted No Effect Concentration (PNEC)

| Predicted No Effect Concentration (PNEC) Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4) | |
|--|--|
| Environmental compartment | Predicted No Effect Concentration (PNEC) |
| Freshwater | 0.32 mg/l |
| Marine water | 0.032 mg/l |
| Sewage treatment plant | 19.1 mg/l |
| Freshwater sediment | 11.5 mg/kg dry weight |
| Marine sediment | 1.15 mg/kg dry weight |
| Soil | 0.34 mg/kg dry weight |
| Freshwater - intermittent | 0.51 mg/l |

| Dimethyl ether (115-10-6) | |
|------------------------------------|--|
| Environmental compartment | Predicted No Effect Concentration (PNEC) |
| Freshwater | 0.155 mg/l |
| Marine water | 0.016 mg/l |
| Microorganisms in sewage treatment | 160 mg/l |
| Freshwater sediment | 0.681 mg/kg dry weight |
| Soil | 0.45 mg/kg dry weight |

| Ethylene glycol (107-21-1) | |
|------------------------------------|--|
| Environmental compartment | Predicted No Effect Concentration (PNEC) |
| Freshwater | 10 mg/l |
| Marine water | 1 mg/l |
| Freshwater sediment | 20.9 mg/kg dry weight |
| Soil | 1.53 mg/kg dry weight |
| Microorganisms in sewage treatment | 199.5 mg/l |
| Freshwater - intermittent | 10 mg/l |

8.2. Exposure controls

Engineering controls

Ensure adequate ventilation, especially in confined areas. Vapours/aerosols must be exhausted directly at the point of origin.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Eye protection must conform to standard EN 166.

Hand protection

Wear suitable gloves. Viton™. Glove thickness > 0.4 mm. Break through time. >30 minutes. Short term. Butyl rubber. Nitrile rubber. Glove thickness > 0.1mm. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374

Skin and body protection

Wear appropriate personal protective clothing to prevent skin contact.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit. During spraying wear suitable respiratory equipment.

Recommended filter type:

Organic gases and vapours filter conforming to EN 14387. Wear a respirator conforming to EN 140 with Type A filter or better.

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Environmental exposure controls Prevent product from entering drains. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|-----------------|---------------------------|
| Physical state | Liquid |
| Appearance | Aerosol Foam |
| Colour | Pink |
| Odour | No information available. |
| Odour threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---|--------------------------|-------------------------|
| Melting point / freezing point | No data available | None known |
| Initial boiling point and boiling range | Not applicable, Aerosol | Not applicable, Aerosol |
| Flammability | Flammable | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | No data available | |
| Lower flammability or explosive limits | No data available | |
| Flash point | Not applicable, Aerosol | Not applicable, Aerosol |
| Autoignition temperature | No data available | None known |
| Decomposition temperature | | None known |
| pH | No data available | None known. |
| pH (as aqueous solution) | No data available | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | |
| Water solubility | Reacts with water. | None known |
| Solubility(ies) | No data available | None known |
| Partition coefficient | No data available | None known |
| Vapour pressure | 5100 | hPa |
| Relative density | No data available | None known |
| Bulk Density | No data available | |
| Liquid Density | 1.00 g/cm ³ | |
| Relative vapour density | No data available | None known |
| Particle characteristics | | |
| Particle Size | No information available | |
| Particle Size Distribution | No information available | |

9.2. Other information

| | | |
|-------------------|--------------------------|-------------------|
| Solid content (%) | No information available | |
| VOC content | | No data available |

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

| | |
|------------|---------------------------|
| Reactivity | No information available. |
|------------|---------------------------|

10.2. Chemical stability

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Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.
Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Heating causes rise in pressure with risk of bursting.

10.4. Conditions to avoid

Conditions to avoid Keep away from open flames, hot surfaces and sources of ignition. Product cures with moisture. Protect from moisture.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous decomposition products None under normal use conditions. Stable under recommended storage conditions.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Specific test data for the substance or mixture is not available. May cause sensitisation in susceptible persons. (based on components). May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitisation by skin contact. Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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The following values are calculated based on chapter 3.1 of the GHS document

| | |
|-------------------------------|----------------|
| ATEmix (oral) | 2,470.30 mg/kg |
| ATEmix (dermal) | >5000 mg/kg |
| ATEmix (inhalation-gas) | >20000 ppm |
| ATEmix (inhalation-dust/mist) | 8.33 mg/l |
| ATEmix (inhalation-vapour) | >20 mg/l |

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|--------------------------------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane | LD50 > 500 - 2000 mg/kg (males); LD50 = 632 mg/kg (females)(Rattus) | LD50 >2000 mg/Kg (Rattus) (OECD 402) | LD50 >7 mg/L (4h)(Rattus) (OECD 403) |
| Diphenylmethane-diisocyanate, isomers and homologues | LD50 > 10000 mg/kg (Rattus) | LD 50 > 9400 mg/kg (Oryctolagus cuniculus) | =1.5 mg/L (Rattus) 4 h |
| Isobutane | - | - | =658 mg/L (Rattus) 4 h |
| Dimethyl ether | - | - | =164000 ppm (Rattus) 4 h |
| Ethylene glycol | ATE 500 mg/kg | = 10600 mg/kg (Rattus) = 9530 µL/kg (Oryctolagus cuniculus) | > 2.5 mg/L (Rat) 6 h |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes skin irritation.

Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)

| Method | Species | Exposure route | Effective dose | Exposure time | Results |
|----------|---------|----------------|----------------|---------------|--------------|
| OECD 404 | Rabbit | Dermal | | | Non-irritant |

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

| Method | Species | Exposure route | Effective dose | Exposure time | Results |
|--|---------|----------------|----------------|---------------|--------------------|
| OECD Test No. 404: Acute Dermal Irritation/Corrosion | Rabbit | | | | Mild skin irritant |

Serious eye damage/eye irritation Causes serious eye irritation.

Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)

| Method | Species | Exposure route | Effective dose | Exposure time | Results |
|----------|---------|----------------|----------------|---------------|--------------|
| OECD 405 | Rabbit | eye | | | Non-irritant |

Respiratory or skin sensitisation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)

| Method | Species | Exposure route | Results |
|---|---------|----------------|---|
| OECD Test No. 429: Skin Sensitisation: Local Lymph Node Assay | Mouse | | Did not cause sensitisation on laboratory animals |

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

| Method | Species | Exposure route | Results |
|---|---------|----------------|-------------|
| OECD Test No. 429: Skin Sensitisation: Local Lymph Node Assay | Mouse | | sensitising |

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Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.

Component Information

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

| Method | Species | Results |
|--|---------|--------------|
| OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies | Rat | Carcinogenic |

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure May cause respiratory irritation.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard Based on available data, the classification criteria are not met.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea | M-Factor | M-Factor (long-term) |
|--|---|---|----------------------------|-------------------------------------|----------|----------------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane 1244733-77-4 | EC50 (72h) = 82 mg/L (Pseudokirchneriella subcapitata) OECD 201 | LC50 (96h) = 51 mg/L (Pimephales promelas) Static | - | LC50 (48h) = 131 mg/L Daphnia magna | | |
| Diphenylmethane-diisocyanate, isomers and homologues 9016-87-9 | ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201) | CL50 (96h) >1000 mg/L (Danio rerio) | - | EC50 (24H) >1000 mg/L Daphnia magna | | |
| Dimethyl ether 115-10-6 | - | LC50: >4.1g/L (96h, Poecilia reticulata) | - | > 4400 mg/L (Daphnia) (NEN 6501) | | |
| Ethylene glycol | EC50: 6500 - | LC50 96 h = | EC50 = 10000 | EC50: | | |

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|----------|--|---|---|---------------------------------|--|--|
| 107-21-1 | 13000mg/L (96h, Pseudokirchneriella subcapitata) | 16000 mg/L (Poecilia reticulata static) | mg/L 16 h EC50 = 620 mg/L 30 min EC50 = 620.0 mg/L 30 min | =46300mg/L (48h, Daphnia magna) | | |
|----------|--|---|---|---------------------------------|--|--|

12.2. Persistence and degradability

Persistence and degradability No information available.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

| Method | Exposure time | Value | Results |
|--|---------------|-------------------|---------------------------|
| OECD Test No. 302C: Inherent Biodegradability: Modified MITI Test (II) | 28 days | 0% biodegradation | Not readily biodegradable |

12.3. Bioaccumulative potential

Bioaccumulation

Component Information

| Chemical name | Partition coefficient |
|---|-----------------------|
| Reaction products of phosphoryl trichloride and 2-methyloxirane | 2.68 |
| Isobutane | 2.8 |
| Dimethyl ether | -0.18 |
| Ethylene glycol | -1.36 |

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Reaction products of phosphoryl trichloride and 2-methyloxirane | The substance is not PBT / vPvB |
| Isobutane | The substance is not PBT / vPvB PBT assessment does not apply |
| Dimethyl ether | The substance is not PBT / vPvB |
| Ethylene glycol | The substance is not PBT / vPvB PBT assessment does not apply |

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

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| | |
|---------------------------------|---|
| Contaminated packaging | Empty containers should be taken to an approved waste handling site for recycling or disposal. |
| European Waste Catalogue | 08 05 01* waste isocyanates 16 05 04* gases in pressure containers (including halons) containing dangerous substances 17 06 04 insulation materials other than those mentioned in 17 06 01 and 17 06 03 |
| Other information | Waste codes should be assigned by the user based on the application for which the product was used. |

SECTION 14: Transport information

Land transport (ADR/RID)

| | |
|-----------------------------------|--------------------------|
| 14.1 UN number or ID number | UN1950 |
| 14.2 Proper Shipping Name | Aerosols |
| 14.3 Transport hazard class(es) | 2 |
| Labels | 2.1 |
| 14.4 Packing group | Not regulated |
| Description | UN1950, Aerosols, 2, (D) |
| 14.5 Environmental hazards | Not applicable |
| 14.6 Special precautions for user | |
| Special Provisions | 327, 625, 344, 190 |
| Classification code | 5F |
| Tunnel restriction code | (D) |
| Limited quantity (LQ) | 1 L |

IMDG

| | |
|--|-----------------------------------|
| 14.1 UN number or ID number | UN1950 |
| 14.2 Proper Shipping Name | Aerosols |
| 14.3 Transport hazard class(es) | 2.1 |
| 14.4 Packing group | Not regulated |
| Description | UN1950, Aerosols, 2.1, (0°C c.c.) |
| 14.5 Marine pollutant | NP |
| 14.6 Special precautions for user | |
| Special Provisions | 63,190, 277, 327, 344, 381, 959 |
| Limited Quantity (LQ) | See SP277 |
| EmS-No. | F-D, S-U |
| 14.7 Maritime transport in bulk according to IMO instruments | |
| Transport in bulk according to Annex II of MARPOL and the IBC Code | Not applicable |

Air transport (ICAO-TI / IATA-DGR)

| | |
|-----------------------------------|----------------------------------|
| 14.1 UN number or ID number | UN1950 |
| 14.2 Proper Shipping Name | Aerosols, flammable |
| 14.3 Transport hazard class(es) | 2.1 |
| 14.4 Packing group | Not regulated |
| Description | UN1950, Aerosols, flammable, 2.1 |
| 14.5 Environmental hazards | Not applicable |
| 14.6 Special precautions for user | |
| Special Provisions | A145, A167, A802 |
| Limited quantity (LQ) | 30 kg G |
| ERG Code | 10L |

Section 15: REGULATORY INFORMATION

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

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European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Check whether measures in accordance with Directive 94/33/EC for the protection of young people at work must be taken.

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006)

SVHC: Substances of Very High Concern for Authorisation:

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

EU-REACH (1907/2006) - Annex XVII - Substances subject to Restriction

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

| Chemical name | CAS No | Restricted substance per REACH Annex XVII |
|--|-----------|---|
| Diphenylmethane-diisocyanate, isomers and homologues | 9016-87-9 | 56 74. |
| Diisocyanates | -- | 74 |

56

If product supplied to the general public with substance $\geq 0.1\%$, then gloves must be provided with the product

74 If product supplied to the industrial or professional users with total monomeric diisocyanates $\geq 0.1\%$, then its packaging must mention "As from 24 August 2023 adequate training is required before industrial or professional use"

Substance subject to authorisation per REACH Annex XIV

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

Dangerous substance category per Seveso Directive (2012/18/EU)

P3a - FLAMMABLE AEROSOLS

P3b - FLAMMABLE AEROSOLS

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Persistent Organic Pollutants

Not applicable

National regulations

France

Occupational Illnesses (R-463-3, France)

| Chemical name | French RG number |
|---|------------------|
| Diphenylmethane-diisocyanate, isomers and homologues 9016-87-9 | RG 62 |
| Isobutane 75-28-5 | RG 84 |

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| | |
|-----------------------------|---|
| Dimethyl ether 115-10-6 | RG 84 |
| Ethylene glycol 107-21-1 | RG 84 RG 5, RG 14, RG 15, RG 15bis, RG 20bis |

Germany

Ordinance on Industrial Safety and Health - Germany - BetrSichV

No flammable liquids in accordance with BetrSichV

Water hazard class (WGK) obviously hazardous to water (WGK 2)

Netherlands

List of Carcinogenic, mutagenic and reproductive toxin substances in accordance with Inspectorate SZW (Netherlands)

Not Listed

Sweden

Occupational exposure limits AFS 2018:1

Special care should be applied for employees under the age of 18. Young people under the age of 18 may not carry out any work causing harmful exposure to this product. AFS 2012:3

AFS 2011: 19 - Chemical working environment risks (Amended and reprinted in AFS 2014: 43), §§37a-g

Denmark

Registration number(s) (P-no.) No information available

MAL-Code 1-3

AT-Guide C.0.1 August 2007: Limit values for substances and materials

Norway

Registration number(s) (PRN-no.) 93920

15.2. Chemical safety assessment

Chemical Safety Assessments have been carried out by the Reach registrants for substances registered at >10 tpa. No Chemical Safety Assessment has been carried out for this mixture.

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H220 - Extremely flammable gas

H280 - Contains gas under pressure; may explode if heated

H302 - Harmful if swallowed

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

H412 - Harmful to aquatic life with long lasting effects

Notes relating to the identification, classification and labelling of substances

Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers

Note U (Table 3): When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case. The following codes are assigned:

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Press. Gas (Comp.)
Press. Gas (Liq.)
Press. Gas (Ref. Liq.)
Press. Gas (Diss.)
Aerosols shall not be classified as gases under pressure (See Annex I, Part 2, Section 2.3.2.1, Note 2)

SVHC: Substances of Very High Concern for Authorisation:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals
STOT RE: Specific target organ toxicity - Repeated exposure
STOT SE: Specific target organ toxicity - Single exposure
EWC: European Waste Catalogue
LOW: List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA: International Air Transport Association
ICAO: ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG: International Maritime Dangerous Goods
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail

Legend SECTION 8: Exposure controls/personal protection

| | | | |
|---------|-----------------------------------|------|----------------------------------|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| AGW | Occupational exposure limit value | BGW | Biological limit value |
| Ceiling | Maximum limit value | * | Skin designation |

| Classification procedure | |
|---|-----------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - Vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |
| Flammable aerosol | On basis of test data |

Key literature references and sources for data used to compile the SDS

European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
NIOSH (National Institute for Occupational Safety and Health)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set

Prepared By Product Safety & Regulatory Affairs

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Training Advice AS FROM 24 AUGUST 2023 ADEQUATE TRAINING IS REQUIRED BEFORE INDUSTRIAL OR PROFESSIONAL USE
For further information, please contact:
<https://www.safeusediisocyanates.eu/>

Further information No information available

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Regulation (EC) No. 1272/2008 and Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878

Disclaimer

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet