

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

Revision date Not Applicable

Revision Number N/A

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

1.1. Product identifier

Product Code(s) DRE-C16220400

Product Name Piperazine

Form Not applicable

NOTE [8] - No registration number is given for this substance because it is under the threshold in REACH Article 6(1) and not subject to the registration requirements according to REACH Title II

EC No (EU Index No) 203-808-3

CAS No. 110-85-0

Chemical name Piperazine

Pure substance/mixture Substance

Formula C₄ H₁₀ N₂

Molecular weight 86.16

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

Recommended use Laboratory use

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Supplier

Will be updated as per the company.

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1.4. Emergency telephone number

Emergency Telephone

Will be updated as per the company.

| Emergency Telephone - §45 - (EC)1272/2008 | |
|---|--------------------------|
| Europe | 112 |
| Austria | No information available |
| Bulgaria | |
| Croatia | |
| Cyprus | |
| Czech Republic | |
| Denmark | |
| France | |
| Hungary | |
| Ireland | |
| Italy | |
| Lithuania | |
| Luxembourg | |
| Netherlands | |
| Norway | |
| Portugal | |
| Romania | |
| Slovakia | |
| Slovenia | |
| Spain | |
| Sweden | |
| Switzerland | |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to
Regulation (EC) No. 1272/2008 [CLP]

| | |
|-------------------------|---------------------|
| Acute toxicity - Oral | Category 4 - (H302) |
| Acute toxicity - Dermal | Category 4 - (H312) |

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| | |
|--|------------------------------------|
| Skin corrosion/irritation | Category 1 Sub-category B - (H314) |
| Serious eye damage/eye irritation | Category 1 - (H318) |
| Respiratory sensitisation | Category 1 - (H334) |
| Skin sensitisation | Category 1 - (H317) |
| Reproductive toxicity | Category 2 - (H361) |

2.2. Label elements

203-808-3

Contains Piperazine



Signal word

Danger

Hazard statements

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H361 - Suspected of damaging fertility or the unborn child

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

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

2.3. Other hazards

No information available.

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

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

| | | |
|---------------|--|--|
| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of |
|---------------|--|--|

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| | High Concern (SVHC) for Authorisation | Substances |
|------------|---------------------------------------|------------|
| Piperazine | - | - |

SECTION 3: Composition/information on ingredients

3.1 Substances

| Chemical name | Weight-% | REACH registration number | EC No (EU Index No) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|------------------------|----------|---------------------------|-----------------------------|---|------------------------------------|----------|----------------------|
| Piperazine 110-85-0 | 100 | - | 203-808-3 (612-057-00-4) | Flam. Sol. 1 (H228) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Repr. 2 (H361fd) | | | |

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

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 (ATE_{mix}) for classifying a mixture based on its components

| Chemical name | 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 |
|------------------------|-----------------|-------------------|---|--|--------------------------------------|
| Piperazine 110-85-0 | 600 | 1590 | No data available | No data available | No data available |

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)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

Immediate medical attention is required. Show this safety data sheet to the doctor in

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| | |
|---|--|
| | attendance. |
| Inhalation | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Get immediate medical attention. May cause allergic respiratory reaction. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention. |
| Skin contact | May cause an allergic skin reaction. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. |
| Ingestion | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention. May produce an allergic reaction. |
| Self-protection of the first aider | 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. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. |

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

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

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

| | |
|------------------------|--|
| Note to doctors | May cause sensitisation in susceptible persons. Treat symptomatically. Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. |
|------------------------|--|

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|-------------------------------------|--|
| Suitable Extinguishing Media | Dry chemical, CO2, alcohol-resistant foam or water spray. |
| Large Fire | CAUTION: Use of water spray when fighting fire may be inefficient. |

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Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Product is or contains a sensitiser. May cause sensitisation by inhalation and skin contact. May cause sensitisation by skin contact. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.

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 Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Attention! Corrosive material.

Other information 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 Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

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.

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

Advice on safe handling

Do not eat, drink or smoke when using this product. 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. Provide extract ventilation to points where emissions occur. Remove contaminated clothing and shoes. Take off contaminated clothing and wash it before reuse. Handle product only in closed system or provide appropriate exhaust ventilation.

General hygiene considerations

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

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions[#]

Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Protect from moisture. Store away from other materials.

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|------------------------|---|--|---|---|---|
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL 0.3 mg/m ³ Sa+ Sh+ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ Skin Sensitisation Respiratory Sensitisation |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ S+ | TWA: 0.003 ppm TWA: 0.1 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.028 ppm TWA: 0.1 mg/m ³ |

Will be updated as per company

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| | | | | | |
|------------------------|--|---|--|---|---|
| | | Ceiling: 0.3 mg/m ³ | STEL: 0.3 mg/m ³ | S+ | STEL: 0.084 ppm STEL: 0.3 mg/m ³ |
| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ | respiratory and skin sensitizer | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ Sens+ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.03 ppm TWA: 0.11 mg/m ³ senR+ senD+ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ J+ |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ A+ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Piperazine 110-85-0 | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ Sensitizer dermal and respiratory | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ Ceiling: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ Sen+ |
| Chemical name | Sweden | | Switzerland | | United Kingdom |
| Piperazine 110-85-0 | NGV: 0.03 ppm NGV: 0.1 mg/m ³ Bindande KGV: 0.08 ppm Bindande KGV: 0.3 mg/m ³ S+ | | - | | TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³ Sen+ |

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL)
Predicted No Effect Concentration (PNEC)

No information available.
No information available.

8.2. Exposure controls

Personal protective equipment

Eye/face protection

Avoid contact with eyes. Wear safety glasses with side shields (or goggles). Tight sealing safety goggles. Face protection shield.

Hand protection

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.

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| Gloves | | | |
|---------------------|---------------------------------------|-----------------|--------------------|
| Duration of contact | PPE - Glove material | Glove thickness | Break through time |
| | Wear protective butyl rubber gloves | 0.5 mm | ≥8 hours |
| | Wear protective nitrile rubber gloves | 0.35 mm | ≥8 hours |

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

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

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Solid
Appearance Crystalline
Colour colourless
Odour slight amine.
Odour threshold No information available

| Property | Values | Remarks • Method |
|--|-------------------|------------------|
| Melting point / freezing point | 111 - 113 °C | None known |
| Initial boiling point and boiling range | 147.7 °C | None known |
| Flammability | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | 14 vol. % | |
| Lower flammability or explosive limits | 4 vol. % | |
| Flash point | 66 °C | None known |
| Autoignition temperature | 320 °C | None known |
| Decomposition temperature | | None known |

| | | |
|----------------------------|--------------------------|--------------------------|
| pH | 10.8 - 11.8 | None known |
| pH (as aqueous solution) | No data available | No information available |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |
| Water solubility | 150 g/L | None known |
| Solubility(ies) | No data available | None known |
| Partition coefficient | No data available | None known |
| Vapour pressure | 15 hPa | @ 50 °C |
| Relative density | 1.1 g/cm ³ | @ 20 °C |
| Bulk density | No data available | |
| Liquid Density | No data available | |
| 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

| | |
|-------------------|---|
| Molecular weight | 86.16 |
| Molecular formula | C ₄ H ₁₀ N ₂ |

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

| | |
|-----------|---------------------------------|
| Stability | Stable under normal conditions. |
|-----------|---------------------------------|

Explosion data

| | |
|----------------------------------|-------|
| Sensitivity to mechanical impact | None. |
| Sensitivity to static discharge | None. |

10.3. Possibility of hazardous reactions

| | |
|------------------------------------|---|
| Possibility of hazardous reactions | Can react briskly with oxidisers - danger of explosion. |
|------------------------------------|---|

10.4. Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods.

10.5. Incompatible materials

Incompatible materials Acids. Bases. Oxidising agent.

Hazardous decomposition products None known based on information supplied.

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 | Specific test data for the substance or mixture is not available. (based on components). May cause sensitisation in susceptible persons. Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. |
| Eye contact | Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes. (based on components). Corrosive to the eyes and may cause severe damage including blindness. |
| Skin contact | Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May cause sensitisation by skin contact. May be absorbed through the skin in harmful amounts. Harmful in contact with skin. |
| Ingestion | Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation". Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. |

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing. 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. Itching. Rashes. Hives.

Numerical measures of toxicity

Acute toxicity

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|---------------------|-------------------------|-----------------|
| Piperazine | = 600 mg/kg (Rat) | = 1590 mg/kg (Rabbit) | |

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

| | |
|--|--|
| Skin corrosion/irritation | Classification based on data available for ingredients. Causes burns. |
| Serious eye damage/eye irritation | Classification based on data available for ingredients. Risk of serious damage to eyes. Causes burns. |
| Respiratory or skin sensitisation | May cause sensitisation by inhalation. May cause sensitisation by skin contact. |
| Germ cell mutagenicity | No information available. |
| Carcinogenicity | No information available. |
| Reproductive toxicity | Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. Suspected of damaging fertility or the unborn child. |

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

| Chemical name | European Union |
|---------------|----------------|
| Piperazine | Repr. 2 |

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

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 |
|---------------|----------------------|---|----------------------------|--|
| Piperazine | - | LC50: >10000mg/L (96h, <i>Lepomis macrochirus</i>) | - | EC50: 106mg/L (48h, <i>Daphnia magna</i>) |

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

| Chemical name | Partition coefficient |
|---------------|-----------------------|
| Piperazine | -1.5 |

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 contains substance(s) classified as PBT or vPvB.

| Chemical name | PBT and vPvB assessment |
|---------------|---------------------------------|
| Piperazine | The substance is not PBT / vPvB |

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 Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

| | |
|-----------------------------------|----------------------------|
| 14.1 UN number or ID number | UN2579 |
| 14.2 UN proper shipping name | Piperazine |
| 14.3 Transport hazard class(es) | 8 |
| 14.4 Packing group | III |
| Description | UN2579, Piperazine, 8, III |
| 14.5 Environmental hazards | Not applicable |
| 14.6 Special precautions for user | |
| Special Provisions | A803 |
| ERG Code | 8L |

IMDG

| | |
|-----------------------------------|----------------------------|
| 14.1 UN number or ID number | UN2579 |
| 14.2 UN proper shipping name | Piperazine |
| 14.3 Transport hazard class(es) | 8 |
| 14.4 Packing group | III |
| Description | UN2579, Piperazine, 8, III |
| 14.5 Marine pollutant | NP |
| 14.6 Special precautions for user | |
| Special Provisions | None |

EmS-No. F-A, S-B No information available
14.7 Maritime transport in bulk according to IMO instruments No information available

RID

14.1 UN number or ID number UN2579
14.2 UN proper shipping name Piperazine
14.3 Transport hazard class(es) 8
14.4 Packing group III
Description UN2579, Piperazine, 8, III
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
Classification code C8

ADR

14.1 UN number or ID number UN2579
14.2 UN proper shipping name Piperazine
14.3 Transport hazard class(es) 8
14.4 Packing group III
Description UN2579, Piperazine, 8, III, (E)
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
Classification code C8
Tunnel restriction code (E)

SECTION 15: Regulatory information

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

National regulations

France Occupational Illnesses (R-463-3, France)

| Chemical name | French RG number | Title |
|------------------------|----------------------------------|-------|
| Piperazine 110-85-0 | RG 49, RG 49bis, RG 65, RG 66 | - |

Germany
Water hazard class (WGK) slightly hazardous to water (WGK 1)

Netherlands

| Chemical name | Netherlands - List of Carcinogens | Netherlands - List of Carcinogens | Netherlands - List of Reproductive Toxins |
|---------------|-----------------------------------|-----------------------------------|--|
| Piperazine | - | - | Fertility Category 2 Development Category 2 |

Poland

SDS created according to the following Polish regulation: Act of February 25, 2011 on chemical substances and their mixtures (Journal of Laws of 2018, item 143, as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency (EC) as amended. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, as amended. Regulation of the Minister of Health of 10 August 2012 on the criteria and method of classifying chemical substances and their mixtures (Journal of Laws of 2012, item 1018). Regulation of the Minister of Health of 20 April 2012 on labeling packaging of hazardous substances and mixtures and some mixtures (Journal of Laws of 2012, item 445). Regulation of the Minister of Family, Labor and Social Policy of 12 June 2018 on the maximum allowable concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286). Announcement of the Minister of Economy, Labor and Social Policy of August 28, 2003 on the publication of the unified text of the Ordinance of the Minister of Labor and Social Policy on general health and safety at work regulations (Journal of Laws of 2003, No. 169, item 1650). Regulation of the Minister of Health of 30 December 2004 on occupational safety and health related to the presence of chemical agents in the workplace (Journal of Laws of 2005, No. 11, item 86). Act of December 14, 2012 on waste (Journal of Laws of 2013, item 21) Regulation of the Minister of Health of December 30, 2004 on occupational health and safety related to the presence of chemical agents in the workplace (Journal U. of 2005, No. 11, item 86). Waste Act of December 14, 2012 (Journal of Laws of 2013, item 21). Act of 13 June 2013 on the management of packaging and packaging waste, Journal of Laws 2013, item 888). Government statement of September 24, 2002 - European Agreement on the International Carriage of Dangerous Goods by Road (ADR) (Journal of Laws No. 194, item 1629 and Journal of Laws of 2003, No. 207, item 2013 and 2014).

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.

Authorisations and/or restrictions on use:

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

DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors

Not applicable

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|-----------------------|---|--|
| Piperazine - 110-85-0 | 75 | |

Persistent Organic Pollutants

Not applicable

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

Not applicable

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status

EINECS/ELINCS

Contact supplier for inventory compliance status

ENCS

Contact supplier for inventory compliance status

IECSC

Contact supplier for inventory compliance status

KECL

Contact supplier for inventory compliance status

PICCS

Contact supplier for inventory compliance status

AIIC

Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report

A Chemical Safety Assessment is not required for this substance

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

H228 - Flammable solid

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H361 - Suspected of damaging fertility or the unborn child

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA TWA (time-weighted average)

Ceiling Maximum limit value

STEL

Sk*

STEL (Short Term Exposure Limit)

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 |
| 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 |

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

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
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
World Health Organization

Revision date Not Applicable

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. Company makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

Disclaimer

The Final Document will be available at the time of consignment.

Can vary as per company.

End of Safety Data Sheet