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Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)
Classifications according to Regulation (EC) No 1272/2008.
Printdate 16 Sep 2024

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product name:

Aziridine (stabilized)

1.1. Catalog No.:

688126

1.2. Relevant identified uses of the substance or mixture

Identified uses: Laboratory chemical
R&D

1.3. Uses advised against:

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1.4. Emergency telephone number

HPC Standards Tel. +49 34291 3372-36
This number is only available during office hours.

2. HAZARDS IDENTIFICATION

2.1/2.2 Classification of the Substance or Mixture and Label Elements
GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)
Acute Toxicity, Oral (Category 4)
Sensitisation, Skin (Category 1)
Eye Damage/Irritation (Category 2A)
Hazardous to the Aquatic Environment, Acute Hazard (Category 2)
Hazardous to the Aquatic Environment, Long-Term Hazard (Category 2)

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)
Signal Word Warning

GHS Hazard Statements
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

GHS Precautionary Statements

P301/P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water

P302/P352 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P305/P351/P338 Collect spillage.
P391

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2.2. Label elements

2.2.1. Pictogram

2.2.2.

Unclassified Hazards/Hazards Not Otherwise Classified
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS number , Common name
151-56-4 Ethyleneimine

3.1.1. Formula

C2H5N

3.1.2. Molecular Weight (g/mol)

43.08

3.1.3. CAS-No.

151-56-4

4. FIRST AID MEASURES

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact
Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesnt get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information
Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. Discard any shoes or clothing items that cannot be decontaminated.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Alcohol resistant foam. Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only

Do not use water jet as an extinguisher, as this will spread the fire. Carbon dioxide (CO2).Unsuitable extinguishing media

Specific hazards arising from the chemical
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Highly flammable liquid and vapor.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapor. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination

7. HANDLING AND STORAGE

Precautions for safe handling
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice

2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Conditions for safe storage, including any incompatibilities
Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid spark promoters. Eliminate sources of ignition. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Refrigeration recommended. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value
Ethyleneimine (CAS 151-56-4)	STEL	0.1 ppm
	TWA	0.05 ppm

Biological limit values - No biological exposure limits noted for the ingredient(s).

Exposure guidelines
US - California OELs: Skin designation
Ethyleneimine (CAS 151-56-4) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies
Ethyleneimine (CAS 151-56-4) Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation
Ethyleneimine (CAS 151-56-4) Can be absorbed through the skin.

Appropriate engineering controls
Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Skin protection
Individual protection measures, such as personal protective equipment

Eye/face protection
Wear eye/face protection. Wear safety glasses with side shields (or goggles) and a face shield.

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene consideration
When using, do not eat, drink or smoke. Do not get this material on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties
Appearance
Liquid.

Physical state
LiquidForm

ColorlessColor

Odor threshold Not available.
pH Not available.
Melting point/freezing point -96.7 °F (-71.5 °C)
Initial boiling point and boiling range 131 - 132.8 °F (55 - 56 °C) 101.325 kPa
Flash point 12.0 °F (-11.1 °C) Closed Cup

Evaporation rate Not available.
.Flammability (solid, gas) Not available
Upper/lower flammability or explosive limits
Flammability limit - lower (%) Not available.
Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.
Explosive limit - upper (%) Not available.
Vapor pressure 28.4 kPa at 25 °C
Vapor density 1.48
Relative density Not available.
Solubility(ies)
Solubility (water) Miscible
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature 612 °F (322.22 °C)
Decomposition temperature Not available.
Viscosity Not available.
Other information
Density 0.832 g/cm3 estimated
Flammability class Flammable IB estimated
Molecular formula C2-H5-N
Molecular weight 43.08 g/mol
Specific gravity 0.83 at 24 °C

10. STABILITY AND REACTIVITY

Stability and reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.Reactivity

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization does not occur.

Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.
Hazardous decomposition products No hazardous decomposition products are known.

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11. TOXICOLOGICAL INFORMATION

11. Toxicological information
Information on likely routes of exposure
Inhalation Fatal if inhaled.
Skin contact Fatal in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact Causes serious eye damage.
Ingestion Fatal if swallowed. Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause an allergic skin reaction. Dermatitis. Rash.
Information on toxicological effects
Acute toxicity Fatal if inhaled. Fatal in contact with skin. Fatal if swallowed. May cause an allergic skin reaction.
Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Product	Species	Test Results
Ethyleneimine (CAS 151-56-4)		
Acute		
Dermal		
LD50	Guinea pig	14 mg/kg
		14 ml/kg
	Rabbit	13 mg/kg
	Rat	12.45 mg/kg
Inhalation		
LC50	Cat	250 mg/l, 30 Minutes
	Guinea pig	25 - 50 ppm, 4 Hours
	Mouse	3.93 mg/l, 10 Minutes
		0.4 mg/l, 2 Hours
	Rabbit	50 mg/l, 30 Minutes
		0.1 mg/l, 2 Hours
	Rat	> 1.8 mg/l, 30 Minutes
		100 mg/m3
		25 - 50 ppm, 4 Hours
		0.1 mg/l, 2 Hours
Oral		
LD50	Rat	4.814 mg/kg
Other		
LD50	Mouse	4 mg/kg
	Rat	3.5 mg/kg

* Estimates for product may be based on additional component data not shown.

Causes severe skin burns and eye damage.Skin corrosion/irritation
Causes serious eye damage.Serious eye damage/eye irritation
Respiratory or skin sensitization
Respiratory sensitization Not available.
May cause an allergic skin reaction.Skin sensitization
May cause genetic defects.Germ cell mutagenicity
Carcinogenicity May cause cancer.
IARC Monographs. Overall Evaluation of Carcinogenicity
Ethyleneimine (CAS 151-56-4) 2B Possibly carcinogenic to humans.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Ethyleneimine (CAS 151-56-4) Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects
Specific target organ toxicity single exposure Not classified.
Specific target organ toxicity - repeated exposure Not classified.
Aspiration hazard Not available.
Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. ECOLOGICAL INFORMATION

Ecological information
Ecotoxicity Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.
No data is available on the degradability of this product.Persistence and degradability
No data available.Bioaccumulative potential

No data available.Mobility in soil
Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component

13. DISPOSAL CONSIDERATIONS

Disposal considerations
Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

.Local disposal regulations Dispose in accordance with all applicable regulations

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Hazardous waste code
US RCRA Hazardous Waste P List: Reference
Ethyleneimine (CAS 151-56-4) P054

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied

14. TRANSPORT INFORMATION

Transport information
DOT
UN1185 UN number
Ethyleneimine, stabilizedUN proper shipping name
Class 6.1(PGI, II)
Transport hazard class(es)
Subsidiary risk 3
Label(s) 6.1, 3

Packing group I
Read safety instructions, SDS and emergency procedures before handling.Special precautions for user
1, B9, B14, B30, B77, N25, N32, T22, TP2, TP13, TP38, TP44 Special provisions
NonePackaging exceptions
226Packaging non bulk
244 Packaging bulk
IATA
UN1185UN number
Ethyleneimine, stabilizedUN proper shipping name

Transport hazard class(es)
Class 6.1(PGIII)
Subsidiary risk 3
Packing group Not applicable.
Environmental hazards No.

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6FH ERG Code
Read safety instructions, SDS and emergency procedures before handling

15. REGULATORY INFORMATION

Europe
European Inventory of Existing Commercial Chemical Substances (EINECS) No
Europe European List of Notified Chemical Substances (ELINCS) Yes

"Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
"No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing
country(s).

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any
guarantee of the properties of the product. For lab use only!