

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended 2015/830.

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

1.1 Product identifier

Product name: Ethylenediamine

Product No. 8409

Additional identification

Chemical name: ETHYLENEDIAMINE

Chemical formula: C₂H₈N₂

INDEX No. 612-006-00-6

CAS-No. 107-15-3

EC No. 203-468-6

REACH Registration No.

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

Identified uses: For Laboratory, Research or Manufacturing Use.

Uses advised against: Not determined.

1.3 Details of the supplier of the safety data sheet

Avantor Performance Materials Poland S.A.
Sowinskiego 11str., 44-101 Gliwice,
Poland

Telephone: 48 32 239-20-00

Fax: 48 32 239-23-70

Contact person: Product Information Compliance

E-mail: export@avantormaterials.com

E-mail address of person responsible for this SDS: SDS@avantormaterials.com

1.4 Emergency telephone number: CHEMTREC: (44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

Flammable liquids Category 3 H226: Flammable liquid and vapour.

Health Hazards

Acute toxicity (Oral) Category 4 H302: Harmful if swallowed.

Acute toxicity (Dermal) Category 4 H312: Harmful in contact with skin.

Skin corrosion Category 1A H314: Causes severe skin burns and eye damage.

Serious eye damage Category 1 H318: Causes serious eye damage.

Skin sensitiser Category 1 H317: May cause an allergic skin reaction.

Respiratory sensitiser

Category 1

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.2 Label Elements

Contains:

ETHYLENEDIAMINE



Signal Word:

Danger

Hazard Statement(s):

H226: Flammable liquid and vapour.
H314: Causes severe skin burns and eye damage.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317: May cause an allergic skin reaction.
H302+H312: Harmful if swallowed or in contact with skin.

Precautionary Statements

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P284: [In case of inadequate ventilation] wear respiratory protection.

Response:

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P310: Immediately call a POISON CENTER/doctor.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
ETHYLENEDIA MINE	50 - <100%	107-15-3	203-468-6	No data available.	No data available.	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

SECTION 4: First Aid Measures

General:

Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

4.1 Description of first aid measures

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if victim is not breathing Call a doctor or poison control centre immediately.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing. In case of irritation from airborne exposure, move to fresh air.
Ingestion:	Rinse mouth. Get medical attention if symptoms occur. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
4.2 Most important symptoms and effects, both acute and delayed:	Causes severe skin and eye burns.
4.3 Indication of any immediate medical attention and special treatment needed	
Hazards:	No data available.
Treatment:	Treat symptomatically. Symptoms may be delayed.

SECTION 5: Firefighting Measures

General Fire Hazards:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
5.1 Extinguishing media	
Suitable extinguishing media:	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
5.2 Special hazards arising from the substance or mixture:	During fire, gases hazardous to health may be formed. Product is highly caustic. Product is acidic. Wear appropriate protective gear if spilled during firefighting.
5.3 Advice for firefighters	
Special fire fighting procedures:	Flammable liquid and vapour. In case of fire and/or explosion do not breathe fumes.
Special protective equipment for firefighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:	Keep unauthorised personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.
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- 6.2 Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or on to the ground.
- 6.3 Methods and material for containment and cleaning up:** Neutralise with lime or soda ash. Neutralise spill area and washings with dilute acetic acid. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dyke far ahead of larger spill for later recovery and disposal.
- 6.4 Reference to other sections:** No data available.

SECTION 7: Handling and Storage:

- 7.1 Precautions for safe handling:** Wear protective gloves/protective clothing/eye protection/face protection. Do not taste or swallow. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Use caution when adding this material to water. See Section 8 of the SDS for Personal Protective Equipment. Avoid contact with eyes. Avoid contact with skin. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting] equipment. Use non-sparking tools. Take action to prevent static discharges. Use personal protective equipment as required. Wash contaminated clothing before reuse.
- 7.2 Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Store in a cool and well-ventilated place. Store in a corrosion-resistant container with a resistant inner liner. Store locked up.
- 7.3 Specific end use(s):** No data available.

SECTION 8: Exposure Controls/Personal Protection

- 8.1 Control Parameters
Occupational Exposure Limits**
None of the components have assigned exposure limits.

- 8.2 Exposure controls
Appropriate Engineering Controls:** No data available.

Individual protection measures, such as personal protective equipment

- General information:** 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. An eye wash and safety shower must be available in the immediate work area.
- Eye/face protection:** Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.
- Skin protection
Hand Protection:** Material: Chemical resistant gloves
- Other:** Wear suitable protective clothing.

Respiratory Protection:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.
Hygiene measures:	Provide eyewash station and safety shower. 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. Do not get this material in contact with skin. Do not get in eyes.
Environmental Controls:	No data available.

SECTION 9: Physical And Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Viscous liquid
Colour:	Colorless
Odour:	Ammonia-like odor
Odour Threshold:	No data available.
pH:	11,9 (25 °C) 25% solution
Freezing point:	8,5 °C
Boiling Point:	116 °C
Flash Point:	34 °C
Evaporation Rate:	0,91 (butyl acetate=1)
Flammability (solid, gas):	Class IC Flammable Liquid
Flammability limit - upper (%):	12 %(V)
Flammability limit - lower (%):	2,5 %(V)
Vapour pressure:	1,60 kPa (25 °C)
Vapour density (air=1):	2,07 Air=1
Density:	0,89 g/ml (20 °C)
Relative density:	0,898 (25 °C)
Solubility(ies)	
Solubility in Water:	Miscible with water.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-2,04
Autoignition Temperature:	385 °C
Decomposition Temperature:	No data available.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidising Properties:	No data available.

9.2 Other information

Molecular weight:	60,1 g/mol (C ₂ H ₈ N ₂)
VOC content:	EC Directive 2004/42: 890 g/l ~100 % (calculated)

SECTION 10: Stability and Reactivity

10.1 Reactivity:	No dangerous reaction known under conditions of normal use.
10.2 Chemical Stability:	Material is stable under normal conditions.
10.3 Possibility of Hazardous Reactions:	Hazardous polymerization does not occur.
10.4 Conditions to Avoid:	Heat, sparks, flames. Contact with incompatible materials.
10.5 Incompatible Materials:	Strong oxidising agents. Metals. Acids. Chlorinated compounds.
10.6 Hazardous Decomposition Products:	Fire or excessive heat may produce hazardous decomposition products. Nitrogen oxides Oxides of Carbon.

SECTION 11: Toxicological Information
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Information on likely routes of exposure

Inhalation:	No data available.
Skin Contact:	Harmful in contact with skin.
Eye contact:	Causes serious eye damage.
Ingestion:	Harmful if swallowed.

11.1 Information on toxicological effects

Acute toxicity

Oral Product:	LD 50 (Rat): 500 mg/kg
Dermal Product:	LD 50 (Rabbit) 730 mg/kg
Inhalation Product:	No data available.

Repeated dose toxicity

Product:	No data available.
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Skin Corrosion/Irritation:

Product:	Causes severe skin burns.
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Serious Eye Damage/Eye Irritation:

Product:	Causes serious eye damage.
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Respiratory or Skin Sensitisation:

Product:	May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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Germ Cell Mutagenicity

In vitro Product:	No mutagenic components identified
In vivo Product:	No mutagenic components identified

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

Reproductive toxicity
Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.

Aspiration Hazard
Product: Not classified

Other Adverse Effects: None known.

SECTION 12: Ecological Information

12.1 Toxicity

Acute toxicity

Fish
Product: No data available.

Specified substance(s)
ETHYLENEDIAMINE LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 98,6 - 131,6 mg/l (Static) Mortality
LC 50 (Carp (*Leuciscus idus melanotus*), 48 h): 405 mg/l Mortality

Aquatic Invertebrates
Product: No data available.

Specified substance(s)
ETHYLENEDIAMINE LC 50 (Brine shrimp (*Artemia salina*), 24 h): 14 mg/l (Static) Mortality
LC 50 (Water flea (*Daphnia magna*), 24 h): 16 mg/l (Static) Mortality

Chronic toxicity

Fish
Product: No data available.

Specified substance(s)
ETHYLENEDIAMINE No data available.

Aquatic Invertebrates
Product: No data available.

Specified substance(s)
ETHYLENEDIAMINE No data available.

Toxicity to aquatic plants
Product: No data available.

Specified substance(s)
ETHYLENEDIAMINE No data available.

12.2 Persistence and Degradability

Biodegradation Product:	There is no data on the degradability of this product.
Specified substance(s) ETHYLENEDIAMINE	No data available.
BOD/COD Ratio Product	No data available.
Specified substance(s) ETHYLENEDIAMINE	No data available.
12.3 Bioaccumulative Potential Product:	No data available on bioaccumulation.
Specified substance(s) ETHYLENEDIAMINE	No data available.
12.4 Mobility in Soil:	No data available.
Known or predicted distribution to environmental compartments ETHYLENEDIAMINE	No data available.
12.5 Results of PBT and vPvB assessment:	Not available.
ETHYLENEDIAMINE	No data available.
12.6 Other Adverse Effects:	Harmful to aquatic life with long lasting effects.
12.7 Additional Information:	No data available.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

General information:	No data available.
Disposal methods:	Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

SECTION 14: Transport Information

ADR

14.1 UN Number:	UN 1604
14.2 UN Proper Shipping Name:	ETHYLENEDIAMINE
14.3 Transport Hazard Class(es)	
Class:	8
Label(s):	8, 3
Hazard No. (ADR):	83
Tunnel restriction code:	(D/E)
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

RID

14.1 UN Number:	UN 1604
14.2 UN Proper Shipping Name	ETHYLENEDIAMINE
14.3 Transport Hazard Class(es)	
Class:	8
Label(s):	8, 3
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IMDG

14.1 UN Number:	UN 1604
14.2 UN Proper Shipping Name:	ETHYLENEDIAMINE
14.3 Transport Hazard Class(es)	
Class:	8
Label(s):	8, 3
EmS No.:	F-E, S-C
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IATA

14.1 UN Number:	UN 1604
14.2 Proper Shipping Name:	Ethylenediamine
14.3 Transport Hazard Class(es):	
Class:	8
Label(s):	8, 3
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

SECTION 15: Regulatory information

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

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

Regulation (EC) No. 689/2008 Import and export of dangerous chemicals: none

Regulation (EC) No. 1907/2006 REACH Annex XIV Substance subject to authorisation, as amended: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use: none

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: none

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently

given birth or are breast feeding.: none

Directive 96/82/EC (Seveso III): on the control of major accident hazards involving dangerous substances:

Chemical name	CAS-No.	Concentration
ETHYLENEDIAMINE	107-15-3	100%

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:
none

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
ETHYLENEDIAMINE	107-15-3	100%

15.2 Chemical safety assessment:

No Chemical Safety Assessment has been carried out.

SECTION 16: Other Information

Revision Information: Not relevant.

References

PBT PBT: persistent, bioaccumulative and toxic substance.
vPvB vPvB: very persistent and very bioaccumulative substance.

Key literature references and sources for data: No data available.

Wording of the H-statements in sections 2 and 3

H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
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.

Training information: No data available.

Issue Date: 22.08.2018
SDS No.:

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