Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

1 Identification

· **Product identifier**

· **Trade name: Ethylenediamine**
· **Product code:** ED0100
· **CAS Number:**
107-15-3

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**

Flam. Liq. 3	H226	Flammable liquid and vapor.
Met. Corr.1	H290	May be corrosive to metals.
Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 3	H311	Toxic in contact with skin.
Acute Tox. 4	H332	Harmful if inhaled.
Skin Corr. 1B	H314	Causes severe skin burns and eye damage.
Resp. Sens. 1B	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1B	H317	May cause an allergic skin reaction.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS02 GHS05 GHS06 GHS08

· **Signal word:** Danger
· **Hazard statements:**
H226 Flammable liquid and vapor.
H290 May be corrosive to metals.
H302+H332 Harmful if swallowed or if inhaled.

(Cont'd. on page 2)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 1)

H311 Toxic in contact with skin.
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.

· **Precautionary statements:**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P234 Keep only in original container.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P285 In case of inadequate ventilation wear respiratory protection.
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/doctor.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use foam, powder, or carbon dioxide for extinction.
P390 Absorb spillage to prevent material damage.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
107-15-3 ethylenediamine

4 First-aid measures

· **Description of first aid measures**

(Cont'd. on page 3)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 2)

· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:**
Supply fresh air.
Provide oxygen treatment if affected person has difficulty breathing.
If experiencing respiratory symptoms: Call a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation continues, consult a doctor.
Seek immediate help for blistering or open wounds.
· **After eye contact:**
Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Asthma attacks
Breathing difficulty
Coughing
Gastric or intestinal disorders when ingested.
Nausea in case of ingestion.
Dizziness
Strong caustic effect on skin and mucous membranes.
Allergic reactions
Disorientation
Unconsciousness
· **Danger:**
May cause sensitisation by inhalation and skin contact.
Harmful if inhaled.
Danger of gastric perforation.
Causes serious eye damage.
Harmful if swallowed.
Toxic in contact with skin.
Danger of impaired breathing.
· **Indication of any immediate medical attention and special treatment needed:**
Medical supervision for at least 48 hours.
If necessary oxygen respiration treatment.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
Carbon dioxide
Gaseous extinguishing agents
Water fog / haze
Water spray
Fire-extinguishing powder

(Cont'd. on page 4)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 3)

· **For safety reasons unsuitable extinguishing agents:** Water stream.
· **Special hazards arising from the substance or mixture**
Flammable liquid and vapor.
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information:**
Eliminate all ignition sources if safe to do so.
Use large quantities of foam as it is partially destroyed by the product.
Cool endangered receptacles with water in flooding quantities.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
Keep away from ignition sources.
Use respiratory protective device against the effects of fumes/dust/aerosol.
Protect from heat.
Isolate area and prevent access.
· **Environmental precautions**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Keep respiratory protective device available.
Flammable gas-air mixtures may be formed in empty containers/receptacles.
Flammable liquid and vapor.
Protect from heat.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**

(Cont'd. on page 5)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 4)

Unsuitable material for receptacle: aluminium.
Unsuitable material for receptacle: steel.
Store only in the original receptacle.
Avoid storage near extreme heat, ignition sources or open flame.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from oxidizing agents.
Do not store together with acids.
· **Further information about storage conditions:** Keep containers tightly sealed.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
107-15-3 ethylenediamine	
PEL (USA)	Long-term value: 25 mg/m³, 10 ppm
REL (USA)	Long-term value: 25 mg/m³, 10 ppm
TLV (USA)	Long-term value: 25 mg/m³, 10 ppm Skin
EL (Canada)	Long-term value: 10 ppm Skin; S
EV (Canada)	Long-term value: 25 mg/m³, 10 ppm
LMPE (Mexico)	Long-term value: 10 ppm A4, PIEL

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:** Use suitable respiratory protective device when aerosol or mist is formed.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· **Material of gloves**
Laminated film gloves.
Nitrile rubber, NBR
Neoprene gloves
Butyl rubber, BR
· **Penetration time of glove material**

(Cont'd. on page 6)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 5)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Not suitable are gloves made of the following materials:**
PVA gloves
PVC gloves

· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**
No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Ammonia-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	8.5 °C (47.3 °F)
· **Boiling point/Boiling range:**	117 °C (242.6 °F)
· **Flash point:**	34 °C (93.2 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	385 °C (725 °F)
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/ vapor mixtures are possible.
· **Explosion limits**	
Lower:	2.7 Vol %
Upper:	16.6 Vol %
· **Oxidizing properties:**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	12 hPa (9 mm Hg)
· **Density at 20 °C (68 °F):**	0.9 g/cm³ (7.51 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.05 g/l

(Cont'd. on page 7)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 6)

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**
Dynamic: Not determined.
Kinematic: Not determined.
· **Other information** No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Reacts violently with oxidizing agents.
Reacts with strong acids.
Toxic fumes may be released if heated above the decomposition point.
Used empty containers may contain product gases which form explosive mixtures with air.
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.
· **Conditions to avoid** Keep ignition sources away - Do not smoke.
· **Incompatible materials**
Metals.
Strong acids
Oxidizers
· **Hazardous decomposition products**
Under fire conditions only:
Nitrogen oxides (NOx)
Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
Toxic in contact with skin.
Harmful if swallowed.
Harmful if inhaled.

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)		
Oral	LD50	500 mg/kg (rat)
Dermal	LD50	560 mg/kg (rabbit)
Inhalative	LC50/4h	14.7 mg/l (rat)

107-15-3 ethylenediamine		
Oral	LD50	500 mg/kg (rat)
Dermal	LD50	560 mg/kg (rabbit)

(Cont'd. on page 8)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 7)

Inhalative	LC50/4h	14.7 mg/l (rat)

· **Primary irritant effect:**
· **On the skin:** Strong caustic effect on skin and mucous membranes.
· **On the eye:** Strong caustic effect.
· **Sensitization:** May cause sensitisation by inhalation and skin contact.

· **IARC (International Agency for Research on Cancer):**
Substance is not listed.

· **NTP (National Toxicology Program):**
Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
Substance is not listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):**
May cause drowsiness or dizziness.
Toxic if swallowed or in contact with skin.
Causes serious eye damage.
· **Repeated dose toxicity:** May cause sensitisation by inhalation and skin contact.
· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
· **Carcinogenicity:** Based on available data, the classification criteria are not met.
· **Reproductive toxicity:** Based on available data, the classification criteria are not met.
· **STOT-single exposure:** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
· **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No relevant information available.

(Cont'd. on page 9)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 8)

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN1604
· **UN proper shipping name**	
· **DOT, IMDG, IATA**	ETHYLENEDIAMINE
· **ADR/RID/ADN**	1604 ETHYLENDIAMINE
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8
· **Label**	8, 3
· **ADR/RID/ADN**	

· **Class**	8 (CF1)
· **Label**	8+3
· **IMDG**	

· **Class**	8
· **Label**	8/3

(Cont'd. on page 10)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 9)

· **IATA**

· **Class**	8
· **Label**	8 (3)
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	II
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	83
· **EMS Number:**	F-E,S-C
· **Segregation groups**	Alkalis
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Hazardous substance:**	5000 lbs, 2270 kg

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

Substance is not listed.

· **Section 355 (extremely hazardous substances):**

Substance is listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act)**

Substance is listed.

· **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

20000

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity for females:**

(Cont'd. on page 11)

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: December 11, 2018 Revision: December 11, 2018

Trade name: Ethylenediamine

(Cont'd. of page 10)

Substance is not listed.

· **Chemicals known to cause developmental toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **EPA (Environmental Protection Agency):**

D

· **IARC (International Agency for Research on Cancer):**

Substance is not listed.

· **Canadian Domestic Substances List (DSL) (Substances not listed.):**

Substance is listed.

16 Other information

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

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistant, Bio-accumulable, Toxic
vPvB: very Persistent and very Bioaccumulative
OSHA: Occupational Safety & Health Administration
Flam. Liq. 3: Flammable liquids – Category 3
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Resp. Sens. 1B: Respiratory sensitisation – Category 1B
Skin Sens. 1B: Skin sensitisation – Category 1B

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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