Material Safety Data Sheets

Revision 3

1. IDENTIFICATION

Product Name	**Ethanolamine**
Other Names	**Monoethanolamine; 2-Aminoethanol; 2-Aminoethan-1-ol**
Uses	**No Data Available**
Chemical Family	**No Data Available**
Chemical Formula	**$C_4H_{10}O$**
Chemical Name	**Acetic acid**
Product Description	**No Data Available**
Company	**Arman sina.co**
Contact Information	**info@armansina.com** **www.armansina.com**

2. HAZARD IDENTIFICATION

Hazard Categories

Flammable liquid:	Category 4
Acute toxicity:	Category 4, Oral
Acute toxicity:	Category 4, Inhalation
Acute toxicity:	Category 4, Dermal
Skin corrosion:	Category 1B
Serious eye damage:	Category 1

Signal Word

Danger

Hazard Statements

H227	Combustible liquid.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled. H314 Causes severe skin burns and eye damage.

Precautionary Statements

Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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 or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant..

if present and easy to do. Continue rinsing.

sumbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ethanolamine	$NH_2CH_2CH_2OH$	141-43-5	>= 90 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.
Obtain medical attention.

Eye

Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

agents or any other additives.

Skin

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes.
Remove and wash contaminated clothing before re-use. Immediate medical attention is required.
Call a physician or Poison Control Centre immediately.

Inhaled

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Advice to Doctor

No information available.

5. FIRE FIGHTING MEASURES

General Measures	No Data Available
Flammability Conditions	No Data Available
Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Fire and Explosion Hazard	Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.
Hazardous Products of Combustion	Carbon oxides. Nitrogen oxides
Special Fire Fighting Instructions	Special protective equipment for fire-fighters Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Personal Protective Equipment	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Flash Point	91 °C
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
Clean Up Procedures	Use appropriate tools to put the spilled material in a suitable chemical waste disposal container.
Containment	Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite). Dike far ahead of spill; use dry sand to contain the flow of material.
Decontamination	No information available.
Environmental Precautionary Measures	Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.
Evacuation Criteria	For non-emergency personnel: Isolate leaks provided that there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Evacuate the area and keep out those who do not have protection. For emergency responders: Wear protective equipment. Keep unprotected persons away. See section 8.
Personal Precautionary Measures	Use personal protective equipment. Avoid contact with skin, eyes and clothing. Remove all sources of ignition. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.

7. HANDLING AND STORAGE

Handling	Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Protect from moisture. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Keep away from combustible material. Keep away from heat and sources of ignition. Use only in well-ventilated areas. Handle in accordance with good industrial hygiene and safety practice. Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage	Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Store in a segrated and approved area. Incompatible Materials: Oxidizing agents. Acids. Acetic acid. Acetic anhydride. Acrolein. Acrylic acid. Acrylonitrile. Chlorosulfonic acid. Epichlorohydrin. Hydrochloric acid. Hydrofluoric acid. Mesityl oxide. Nitric acid. Oleum. beta-Propiolactone. Sulfuric acid. Vinyl acetate. Halogens.
Container	Tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible ethanolamine 141-43-5 ACGIH Time Weighted Average (TWA): 3 ppm Short Term Exposure Limit (STEL): 6 ppm NIOSH/GUIDE Recommended exposure limit (REL): 3 ppm 8 mg/m³ Short Term Exposure Limit (STEL): 6 ppm 15 mg/m³ OSHA_TRANS PEL: 3 ppm 6 mg/m³ Z1A Time Weighted Average (TWA): 3 ppm 8 mg/m³ Short Term Exposure Limit (STEL): 6 ppm 15 mg/m³
Exposure Limits	No Data Available
Biological Limits	No Data Available
Engineering Measures	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.
Personal Protection Equipment	Eye protection: Goggles. Face-shield. Skin and body protection: Chemical resistant protective suit. Gloves. Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
Special Hazards Precaustions	No Data Available
Work Hygienic Practices	Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear liquid
Odour	ammoniacal
Colour	Colourless
pH	12.1 at 100 g/l 20 °C (20 °C)
Vapour Pressure	0.5 hPa at 20 °C (20 °C)
Relative Vapour Density	2.1 Air = 1
Boiling Point	171 °C (171 °C) at 1,013 hPa

Melting Point	10.5 °C
Freezing Point	10.5 °C
Solubility	at 20 °C (20 °C) soluble
Specific Gravity	1.05 (Water = 1)
Flash Point	92.5 °C (92.5 °C) Method: DIN 51758
Auto Ignition Temp	410 °C (410 °C) Method: DIN 51794
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.02 g/cm3 at 20 °C (20 °C)
Specific Heat	No Data Available
Molecular Weight	61.08 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No Data Available
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	Risk of violent reaction or explosion on contact with incompatible materials.
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information	Reactive with oxidizing agents Reactive with acids Incompatible with acetic acid, acetic anhydride, acrolein, acrylic acid, acrylonitrile, chlorosulfonic acid, epichlorohydrin, hydrochloric acid, hydrofluoric acid, mesityl oxide, nitric acid, oleum, beta-Propiolactone, sulfuric acid, vinyl acetate, halogens.
Chemical Stability	Hygroscopic. Stable under recommended storage conditions.
Conditions to Avoid	Heat. Ignition sources. Incompatible materials. Moisture sensitive.
Materials to Avoid	Oxidizing agents. Acids. Acetic acid. Acetic anhydride. Acrolein. Acrylic acid. Acrylonitrile. Chlorosulfonic acid. Epichlorohydrin. Hydrochloric acid. Hydrofluoric acid. Mesityl oxide. Nitric acid. Oleum. beta-Propiolactone. Sulfuric acid. Vinyl acetate. Halogens.
Hazardous Decomposition Products	Carbon oxides. Nitrogen oxides (NOx).

Hazardous Polymerisation	Will not occur.
Corrosivity	**Slightly corrosive in the presence of aluminum, of copper**

11. TOXICOLOGICAL INFORMATION

General Information No Data Available

Acute

Component Information Product Information LD50/oral/rat = VALUE- Acute Tox Oral = 1720mg/kg LD50/oral/mouse = Value - Acute Tox Oral = 700mg/kg LD50/dermal/rabbit VALUE-Acute Tox Dermal = 1mL/kg LD50/dermal/rat VALUE -Acute Tox Dermal = No information available LC50/inhalation/rat VALUE-Vapor = No information available VALUE-Gas = No information available LC50/inhalation/rat = No information available LD50/oral/mouse = 700 mg/kg LC50/inhalation/mouse = No infomation available LD50/oral/rat = 1720 mg/kg Oral LD50 Rat Other LD50 or LC50information = No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxicity to fish LC50 Oncorhynchus mykiss (rainbow trout): 150 mg/l; 96 h neutral (IUCLID)
Toxicity to daphnia and other aquatic invertebrates EC5 E.sulcatum: 45 mg/l; 72 h neutral (IUCLID) EC50
Daphnia magna (Water flea): 65 mg/l; 48 h (IUCLID) Toxicity to algae IC50
Desmodesmus subspicatus (green algae): 22 mg/l; 72 h (IUCLID) IC5 Scenedesmus quadricauda
(Green algae): 0.75 mg/l; 8 d neutral (IUCLID)
Toxicity to bacteria EC50 activated sludge: > 1,000 mg/l; 3 h OECD Test Guideline 209 Persistence and degradability
Biodegradability 90 - 100 %; 28 d OECD Test Guideline 301F Readily biodegradable.
Biochemical Oxygen Demand (BOD) 800 mg/g (5 d) (IUCLID) Theoretical oxygen demand (ThOD) 1,310 mg/g (IUCLID)
Bioaccumulative potential Partition coefficient: n-octanol/water log Pow: -1.91 (25 °C) OECD Test Guideline 107
Bioaccumulation is not expected.

Persistence/Degradability	Readily biodegradable; Low persistence in water/soil; Low persistence in air.
Mobility	No Data Available
Environmental Fate	No Data Available
Bioaccumulation Potential	No Data Available
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information

The information presented only applies to the material as supplied.
The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated.
It is the responsibility of the waste generator to determinethe toxicity and physical properties of the material generated to determine the proper waste identification **and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.**

Special Precautions for Land Fill	No Data Available

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	ETHANOLAMINE or ETHANOLAMINE SOLUTION
Class	8
Subsidiary Risk(s)	No Data Available
EPG	No Data Available
UN Number	UN2491
Hazchem	No Data Available
Pack Group	III
Special Provision	No Data Available

Sea Transport

Proper Shipping Name	ETHANOLAMINE or ETHANOLAMINE SOLUTION
Class	8
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	UN2491
Pack Group	No Data Available
Special Provision	III
EMS	No Data Available
Marine Pollutant	No Data Available

Air Transport

Proper Shipping Name	ETHANOLAMINE or ETHANOLAMINE SOLUTION
Class	8
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	UN2491
Pack Group	No Data Available
Special Provision	III

15. OTHER INFORMATION

Revision 3

< Less Than
> Greater Than

Key/Legend

atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
deg C (° C) Degrees Celcius

deg F (° F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or L Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight