

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/23/2024

Reviewed on 09/23/2024

1 Identification

- **Product identifier**
- **Trade name:** Mixed Amine Standard 1% w/v each Component
1%w/v: DEA, MMA, MDEA, DIPA, DGA, NH3, Piperizine
- **Article number:** VEN024
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Toxicity - Dermal 3 H311 Toxic in contact with skin.



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carcinogenicity 2 H351 Suspected of causing cancer.

Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.



GHS07

Sensitization - Skin 1 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**



GHS06



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Piperazine
Diethanolamine

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- **Hazard statements**

Toxic in contact with skin.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause an allergic skin reaction.
 Suspected of causing cancer.
 Suspected of damaging fertility or the unborn child.

- **Precautionary statements**

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Contaminated work clothing must not be allowed out of the workplace.
 Wear protective gloves/protective clothing/eye protection/face protection.
 [In case of inadequate ventilation] wear respiratory protection.
 If on skin: Wash with plenty of water.
 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
 IF exposed or concerned: Get medical advice/attention.
 Call a poison center/doctor if you feel unwell.
 Specific treatment (see on this label).
 Take off immediately all contaminated clothing and wash it before reuse.
 If skin irritation or rash occurs: Get medical advice/attention.
 If experiencing respiratory symptoms: Call a poison center/doctor.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 12125-02-9	Ammonium Chloride, Reagent ACS Grade	3.114%
CAS: 108-18-9	Diisopropylamine	0.991%
CAS: 110-85-0	Piperazine	0.991%
CAS: 111-42-2	Diethanolamine	0.991%

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· Table of Nonhazardous Ingredients		
CAS: 7732-18-5	Water	90.939%
CAS: 105-59-9	N-Methyldiethanolamine, 99%	0.991%
CAS: 141-43-5	2-Aminoethanol (Monoethanolamine), Reagent Grade	0.991%
CAS: 929-06-6	2-(2-aminoethoxy)ethanol	0.991%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
 Immediately remove any clothing soiled by the product.
 In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
 Supply fresh air and to be sure call for a doctor.
 In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
 No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**
 Dilute with plenty of water.
 Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 Dispose contaminated material as waste according to section 13.
 Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

· PAC-1:		
CAS: 12125-02-9	Ammonium Chloride, Reagent ACS Grade	20 mg/m ³

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CAS: 108-18-9	Diisopropylamine	15 ppm
CAS: 110-85-0	Piperazine	0.09 ppm
CAS: 111-42-2	Diethanolamine	3 mg/m ³
CAS: 141-43-5	2-Aminoethanol (Monoethanolamine), Reagent Grade	6 ppm
CAS: 929-06-6	2-(2-aminoethoxy)ethanol	9 mg/m ³

· **PAC-2:**

CAS: 12125-02-9	Ammonium Chloride, Reagent ACS Grade	25 ppm
CAS: 108-18-9	Diisopropylamine	170 ppm
CAS: 110-85-0	Piperazine	8.9 ppm
CAS: 111-42-2	Diethanolamine	28 mg/m ³
CAS: 141-43-5	2-Aminoethanol (Monoethanolamine), Reagent Grade	170 ppm
CAS: 929-06-6	2-(2-aminoethoxy)ethanol	99 mg/m ³

· **PAC-3:**

CAS: 12125-02-9	Ammonium Chloride, Reagent ACS Grade	150 ppm
CAS: 108-18-9	Diisopropylamine	1,000 ppm
CAS: 110-85-0	Piperazine	54 ppm
CAS: 111-42-2	Diethanolamine	130 mg/m ³
CAS: 141-43-5	2-Aminoethanol (Monoethanolamine), Reagent Grade	1,000 ppm
CAS: 929-06-6	2-(2-aminoethoxy)ethanol	590 mg/m ³

7 Handling and storage

· **Handling:**· **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** No special requirements.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:** Keep receptacle tightly sealed.

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 12125-02-9 Ammonium Chloride, Reagent ACS Grade

REL Short-term value: 20 mg/m³

Long-term value: 10 mg/m³

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TLV	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³
CAS: 108-18-9 Diisopropylamine	
PEL	Long-term value: 20 mg/m ³ , 5 ppm Skin
REL	Long-term value: 20 mg/m ³ , 5 ppm Skin
TLV	Long-term value: 5 ppm Skin
CAS: 110-85-0 Piperazine	
TLV	Long-term value: 0.03* ppm *inh. fraction+vapor,DSEN,RSEN;A4;as piperazine
CAS: 111-42-2 Diethanolamine	
REL	Long-term value: 15 mg/m ³ , 3 ppm
TLV	Long-term value: 1* mg/m ³ Skin; *inhalable fraction and vapor, A3

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

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

· **Eye protection:** Goggles recommended during refilling.

· **Body protection:** Protective work clothing

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9 Physical and chemical properties

· Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Liquid
Color:	Clear
· Odor:	Amine-like
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability:	Not applicable.
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
· Density at 20 °C (68 °F):	1.01667 g/cm ³ (8.48411 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	2.0 %
Water:	90.9 %
VOC content:	1.98 %
	20.2 g/l / 0.17 lb/gal
Solids content:	5.1 %
· Other information	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

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- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	16,059 mg/kg
Dermal	LD50	404 mg/kg (rab)
Inhalative	LC50/4h	303 mg/l

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Harmful
Irritant
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

CAS: 111-42-2	Diethanolamine	2B
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· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	UN2810
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	Toxic, liquids, organic, n.o.s. (Piperazine, Diisopropylamine, 2-Aminoethanol (Monoethanolamine), Reagent Grade) TOXIC LIQUID, ORGANIC, N.O.S. (Piperazine, Diisopropylamine, 2-Aminoethanol (Monoethanolamine), Reagent Grade)
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;"> <p>TOXIC 6</p> </div>
<ul style="list-style-type: none"> · Class · Label 	6.1 Toxic substances 6.1
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center;"> <p>6</p> </div>
<ul style="list-style-type: none"> · Class · Label 	6.1 Toxic substances 6.1
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	III
<ul style="list-style-type: none"> · Environmental hazards: 	Not applicable.
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: 	Warning: Toxic substances 60 F-A,S-A

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· Segregation groups	(SGG18) Alkalis
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (PIPERAZINE, DIISOPROPYLAMINE, 2-AMINOETHANOL (MONOETHANOLAMINE), REAGENT GRADE), 6.1, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **Sara**

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

None of the ingredients is listed.

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

CAS: 111-42-2 | Diethanolamine

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

Water	ACTIVE
Ammonium Chloride, Reagent ACS Grade	ACTIVE
N-Methyldiethanolamine, 99%	ACTIVE
Diisopropylamine	ACTIVE
Piperazine	ACTIVE
Diethanolamine	ACTIVE
2-Aminoethanol (Monoethanolamine), Reagent Grade	ACTIVE
2-(2-aminoethoxy)ethanol	ACTIVE

· **Hazardous Air Pollutants**

CAS: 111-42-2 | Diethanolamine

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 111-42-2 | Diethanolamine

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

CAS: 111-42-2 Diethanolamine

A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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

· **Hazard pictograms**



GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

Piperazine

Diethanolamine

· **Hazard statements**

Toxic in contact with skin.

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

May cause an allergic skin reaction.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Specific treatment (see on this label).

Take off immediately all contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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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.

· **Department issuing SDS:** Environment protection department.

· **Contact:**

Date of Preparation / Last Revision:

· **Date of preparation / last revision**

Revision 0.0, 09-23-2024: Creation date for SDS. CMC/STN

09/23/2024 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Toxicity - Dermal 3: Acute toxicity – Category 3

Sensitization - Respiratory 1: Respiratory sensitisation – Category 1

Sensitization - Skin 1: Skin sensitisation – Category 1

Carcinogenicity 2: Carcinogenicity – Category 2

Toxic to Reproduction 2: Reproductive toxicity – Category 2

US