Lowry & Associates, Div. of Chem-Aquascience, Inc.
5-1151 Gorham Street
Newmarket, ON, Canada, L3Y 8Y1
Telephone: (905) 836 0505



# SAFETY DATA SHEET

## SECTION 1. IDENTIFICATION

**Product identifier used on the label**
: **Trace Hardness Buffer**

**Product Code(s)** : R-0622

**Recommended use of the chemical and restrictions on use**
: Use as directed by manufacturer for purposes directly related to water testing.
Recommended restrictions: None known.

**Chemical family** : Mixture.

**Name, address, and telephone number of the supplier:**

**Lowry & Associates, Div. of Chem-Aquascience, Inc.**
5-1151 Gorham Street
Newmarket,ON, Canada L3Y 8Y1
Supplier's Telephone # : (905) 836-0505, Hours 09:00 to 16:30
**24 Hr. Emergency Tel #** : (613) 996-6666 (CANUTEC)

**Name, address, and telephone number of the manufacturer:**

Refer to supplier

## SECTION 2. HAZARDS IDENTIFICATION

**Classification of the chemical**

Clear colourless liquid. Amine odour.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:

Serious eye damage/eye irritation - Category 2A
Skin Corrosion/Irritation - Category 2
Skin sensitization - Category 1A
Specific target organ toxicity, single exposure - Category 3 respiratory tract irritation

**Label elements**

*Hazard pictogram(s)*

*Signal Word*

WARNING!

*Hazard statement(s)*

Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
May cause respiratory irritation.

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*Precautionary statement(s)*

Wash thoroughly after handling.
Avoid breathing mist or vapours.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/eye protection/face protection.

If on skin: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/attention.
Take off immediately all contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Dispose of contents/container in accordance with local regulation.

**Other hazards**

Other hazards which do not result in classification:

Ingestion may cause severe irritation to the mouth, throat and stomach.Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

| Chemical name | Common name and synonyms | CAS # | Concentration (% by weight) |
|---|---|---|---|
| **Triethanolamine** | TEA | 102-71-6 | **22.00** |
| **Monoethanolamine** | Ethanolaime | 141-43-5 | **14.75** |

## SECTION 4. FIRST-AID MEASURES

**Description of first aid measures**

*Ingestion* : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Seek immediate medical attention/advice. Never give anything by mouth if victim is unconscious.

*Inhalation* : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.

*Skin contact* : Take off all contaminated clothing immediately. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Cover wound with sterile dressing. Seek immediate medical attention/advice. Wash contaminated clothing before reuse. Leather and shoes that have been contaminated with the solution may need to be destroyed.

*Eye contact* : Immediately flush eyes with running water for at least 20 minutes. Protect unharmed eye. Seek immediate medical attention/advice.

# SAFETY DATA SHEET

**Most important symptoms and effects, both acute and delayed**

: Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Causes skin irritation. Symptoms may include redness, edema, drying defatting and cracking of the skin. May cause an allergic skin reaction. Symptoms may include redness, itching and swelling. May cause respiratory irritation. Symptoms may include sore throat, running nose and shortness of breath.

**Indication of any immediate medical attention and special treatment needed**

: Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

**Extinguishing media**

*Suitable extinguishing media*

: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

*Unsuitable extinguishing media*

: Do not use a solid water stream as it may scatter and spread the fire.

**Special hazards arising from the substance or mixture / Conditions of flammability**

: Not considered flammable. Burning produces obnoxious and toxic fumes. Contact with metals may release small amounts of flammable hydrogen gas. Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals.

**Flammability classification (OSHA 29 CFR 1910.106)**

: Non-flammable.

**Hazardous combustion products**

: Ammonia ;Carbon oxides

**Special protective equipment and precautions for firefighters**

*Protective equipment for fire-fighters*

: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

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*Special fire-fighting procedures*

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Dike for water control. Do not allow run-off from fire fighting to enter drains or water courses.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

: All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

**Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. For large spills, dike the area to prevent spreading.

**Methods and material for containment and cleaning up**

: Remove all sources of ignition. Ventilate area of release. Stop spill or leak at source if safely possible. Dike for water control. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Contact the proper local authorities.

# SAFETY DATA SHEET

**Special spill response procedures**

: Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.
US CERCLA Reportable quantity (RQ): None.

## SECTION 7. HANDLING AND STORAGE

**Precautions for safe handling**

: Use in a well-ventilated area. Wear protective gloves and eye/face protection. Avoid breathing mist or vapours. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Keep away from bases, metals and other incompatibles. Keep container tightly closed when not in use. Keep only in original container. Wash thoroughly after handling. Persons with recurrent skin eczema or sensitization problems should be excluded from working with this product. Once a person is sensitized, no further exposure to the material that caused the sensitization should be permitted.

**Conditions for safe storage** : Store in a cool, dry, well-ventilated area. Store locked up. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Store in corrosion-resistant containers. Keep only in original container.

**Incompatible materials** : Acids; Nitrates.; oleum Peroxides Phenols Strong oxidizing agents vinyl acetate

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure Limits:

| Chemical Name | ACGIH TLV | | OSHA PEL | |
|---|---|---|---|---|
| | TWA | STEL | PEL | STEL |
| Triethanolamine | 5 mg/m³ | N/Av | N/Av | N/Av |
| Monoethanolamine | 3 ppm | 6 ppm | 3 ppm ; 6 mg/m³ | N/Av |

### Exposure controls

**Ventilation and engineering measures**

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

**Respiratory protection** : If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Confirmation of which type of respirator is most suitable for the intended application should be obtained from respiratory protection suppliers. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

**Skin protection** : Wear protective gloves. Advise should be sought from glove suppliers.

**Eye / face protection** : Wear eye/face protection. Chemical splash goggles must be worn when handling this material. A full face shield may also be necessary.

**Other protective equipment** : Other equipment may be required depending on workplace standards. An eyewash station and safety shower should be made available in the immediate working area.

**General hygiene considerations**

: Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove and wash contaminated clothing before re-use. Do not take contaminated clothing home.

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# SAFETY DATA SHEET

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** : Clear colourless liquid.
**Odour** : Odorless.
**Odour threshold** : N/Av
**pH** : 10.8
**Melting/Freezing point** : N/Av
**Initial boiling point and boiling range**
: 100°C (212°F)
**Flash point** : Not applicable.
**Flashpoint (Method)** : Not applicable.
**Evaporation rate (BuAe = 1)** : Not available.
**Flammability (solid, gas)** : Not applicable.
**Lower flammable limit (% by vol.)**
: Not applicable.
**Upper flammable limit (% by vol.)**
: Not applicable.
**Oxidizing properties** : None known.
**Explosive properties** : Not explosive
**Vapour pressure** : 17 mmHg
**Vapour density** : 0.6
**Relative density / Specific gravity**
: 1.20
**Solubility in water** : Soluble
**Other solubility(ies)** : None known.
**Partition coefficient: n-octanol/water or Coefficient of water/oil distribution**
: N/Av
**Auto-ignition temperature** : N/Ap
**Decomposition temperature** : Not available.
**Viscosity** : N/Av
**Volatiles (% by weight)** : 98%
**Volatile organic Compounds (VOC's)**
: Not available.
**Absolute pressure of container**
: N/Ap
**Flame projection length** : N/Ap
**Other physical/chemical comments**
: None.

## SECTION 10. STABILITY AND REACTIVITY

**Reactivity** : This product is not reactive.
**Chemical stability** : Stable under the recommended storage and handling conditions prescribed.
**Possibility of hazardous reactions**
: Hazardous polymerization does not occur.
**Conditions to avoid** : Avoid heat and open flame. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.
**Incompatible materials** : Acids; Nitrates.; oleum Peroxides Phenols Strong oxidizing agents vinyl acetate
**Hazardous decomposition products**
: None known, refer to hazardous combustion products in Section 5.

# SAFETY DATA SHEET

## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure:

**Routes of entry inhalation** : YES
**Routes of entry skin & eye** : YES
**Routes of entry Ingestion** : YES
**Routes of exposure skin absorption** : NO

### Potential Health Effects:

**Signs and symptoms of short-term (acute) exposure**

*Sign and symptoms Inhalation* : May cause respiratory irritation. Symptoms may include sore throat, running nose and shortness of breath.

*Sign and symptoms ingestion* : Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract.

*Sign and symptoms skin* : Causes skin irritation. Symptoms may include redness, edema, drying defatting and cracking of the skin.

*Sign and symptoms eyes* : Causes serious eye irritation. Symptoms may include severe pain, tearing, redness, swelling and blurred vision.

**Potential Chronic Health Effects** : Chronic skin contact with low concentrations may cause dermatitis.

**Mutagenicity** : Not expected to be mutagenic in humans.

**Carcinogenicity** : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

**Reproductive effects & Teratogenicity** : Not expected to cause reproductive effects.

**Sensitization to material** : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Skin sensitization - Category 1A Nickel may cause an allergic skin reaction. Not expected to be a respiratory sensitizer.

**Specific target organ effects** : Target Organs:: Eyes, skin, respiratory system and digestive system.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, single exposure -Category 3
May cause respiratory irritation.

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Medical conditions aggravated by overexposure** : Pre-existing skin, eye and respiratory disorders.

**Synergistic materials** : Not available.

**Toxicological data** : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

# SAFETY DATA SHEET

| Chemical name | $LC_{50}$(4hr) inh, rat | $LD_{50}$ (Oral, rat) | $LD_{50}$ (Rabbit, dermal) |
|---|---|---|---|
| Triethanolamine | N/Av | 6110 mg/kg | > 19 870 mg/kg |
| Monoethanolamine | > 1210 mg/m³ (> 1.21 mg/L) (mist) (mouse) | 1720 mg/kg | 1000 mg/kg |

**Other important toxicological hazards**
: None known or reported by the manufacturer.

## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity** : Not expected to be harmful to aquatic organisms. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. See data for individual ingredient ecotoxicity data.

***Ecotoxicity data:***

| Ingredients | CAS No | Toxicity to Fish | | |
|---|---|---|---|---|
| | | LC50 / 96h | NOEC / 21 day | M Factor |
| Triethanolamine | 102-71-6 | 11 800 mg/L (Fathead minnow) | N/Av | None. |
| Monoethanolamine | 141-43-5 | 349 mg/L (common carp) | 1.2 mg/L/30 days (Japanese ricefish) | None. |

| Ingredients | CAS No | Toxicity to Daphnia | | |
|---|---|---|---|---|
| | | EC50 / 48h | NOEC / 21 day | M Factor |
| Triethanolamine | 102-71-6 | 1386 mg/L/24hr (Daphnia magna) | 16 mg/L | None. |
| Monoethanolamine | 141-43-5 | 50 mg/L Water flea | 0.85 mg/L | None. |

| Ingredients | CAS No | Toxicity to Algae | | |
|---|---|---|---|---|
| | | EC50 / 96h or 72h | NOEC / 96h or 72h | M Factor |
| Triethanolamine | 102-71-6 | 169 mg/L/96hr (Green algae) | N/Av | None. |
| Monoethanolamine | 141-43-5 | 2.5 mg/L/72hr (Green algae) | 1 mg/L/72hr | None. |

**Persistence and degradability**
: No data is available on the product itself.

**Bioaccumulation potential** : No data is available on the product itself.

# SAFETY DATA SHEET

| Components | Partition coefficient n-octanol/water (log Kow) | Bioconcentration factor (BCF) |
|---|---|---|
| Triethanolamine (CAS 102-71-6) | -2.53 | <3.9 BCF method: OECD 305C |
| Monoethanolamine (CAS 141-43-5) | -1.31 | |

**Mobility in soil** : No data is available on the product itself.

**Other Adverse Environmental effects**

: No additional information.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Handling for Disposal** : Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

**Methods of Disposal** : Dispose in accordance with all applicable federal, state, provincial and local regulations.

**RCRA** : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

## SECTION 14. TRANSPORTATION INFORMATION

| Regulatory Information | UN Number | UN proper shipping name | Transport hazard class(es) | Packing Group | Label |
|---|---|---|---|---|---|
| 49CFR/DOT | UN2491 | ETHANOLAMINE; or<br>ETHANOLAMINE SOLUTION | 8 | III |  |
| **49CFR/DOT Additional information** | May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. | | | | |
| TDG | UN2491 | ETHANOLAMINE SOLUTION | 8 | III |  |
| **TDG Additional information** | May be shipped as a Limited Quantity when transported in containers no larger than 5 L (1.3 gallons); in packages not exceeding 30 kg (66 pounds) gross mass. | | | | |
| ICAO/IATA | UN2491 | Ethanolamine solution | 8 | III |  |
| **ICAO/IATA Additional information** | Refer to ICAO/IATA Packing Instruction | | | | |
| IMDG | UN2491 | ETHANOLAMINE; or<br>ETHANOLAMINE SOLUTION | 8 | III |  |
| **IMDG Additional information** | Consult the IMDG Regulations for exceptions | | | | |

**Special precautions for user** : None known.

**Environmental hazards** : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

# SAFETY DATA SHEET

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

: Not applicable.

## SECTION 15 - REGULATORY INFORMATION

**US Federal Information:**

Components listed below are present on the following U.S. Federal chemical lists:

| Ingredients | CAS # | TSCA Inventory | CERCLA Reportable Quantity(RQ) (40 CFR 117.302): | SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355: | SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical | |
|---|---|---|---|---|---|---|
| | | | | | Toxic Chemical | de minimus Concentration |
| Triethanolamine | 102-71-6 | Yes | N/Ap | N/Ap | No | No |
| Monoethanolamine | 141-43-5 | Yes | None. | None. | No | No |

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute Health Hazard.

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

**US State Right to Know Laws:**

The following chemicals are specifically listed by individual States:

| Ingredients | CAS # | California Proposition 65 | | State "Right to Know" Lists | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Listed | Type of Toxicity | CA | MA | MN | NJ | PA | RI |
| Triethanolamine | 102-71-6 | No | N/Ap | No | Yes | Yes | Yes | Yes | Yes |
| Monoethanolamine | 141-43-5 | No | N/Ap | Yes | Yes | Yes | Yes | Yes | Yes |

**Canadian Information:**

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

**International Information:**

Components listed below are present on the following International Inventory list:

| Ingredients | CAS # | European EINECs | Australia AICS | Philippines PICCS | Japan ENCS | Korea KECI/KECL | China IECSC | NewZealand IOC |
|---|---|---|---|---|---|---|---|---|
| Triethanolamine | 102-71-6 | 203-049-8 | Present | Present | (2)-308 | KE-25940 | Present | HSR002785 |
| Monoethanolamine | 141-43-5 | 205-483-3 | Present | Present | (2)-301 | KE-20493 | Present (01018) | HSR002984 |

## SECTION 16. OTHER INFORMATION

**Legend** : ACGIH: American Conference of Governmental Industrial Hygienists
CA: California

# SAFETY DATA SHEET

CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
IUCLID: International Uniform ChemicaL Information Database
MA: Massachusetts
MN: Minnesota
MSHA: Mine Safety and Health Administration
N/Ap: Not Applicable
N/Av: Not Available
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

**References** : Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from manufacturer
OECD- The Global Portal to Information on Chemical Substances - eChemPortal, 2015

**Preparation Date (mm/dd/yyyy)** : 02/14/2016

**Other special considerations for handling** : Provide adequate information, instruction and training for operators.

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# SAFETY DATA SHEET

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