

SAFETY DATA SHEET

Preparation Date: 2/17/2015

Revision Date: 2/27/2015

Revision Number: G1

Product identifier

Product code: TR143
Product Name: TROLAMINE, NF

Other means of identification

Synonyms: Tri(2-hydroxyethyl)amine; Triethanolamine; Triethylolamine;
TEA (amino alcohol); Tri(hydroxyethyl)amine;
Tri-beta-hydroxyethylamine; Triethylamine, 2,2',2"-trihydroxy-;
Trihydroxytriethylamine
Trolamine
Triethanolamine
CAS #: 102-71-6
RTECS # KL9275000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Intermediate, in making emulsions, solvent, mfr of synthetic resins; pharmaceutic aid (alkalizing agent); increasing penetration of organic liquids into wood and paper; in prodn of lubricants for textile industry; intermediate in mfr of surface active agents, textile specialties, waxes, polishes, herbicides, petroleum demulsifiers, toilet goods, cement additives, cutting oils. In making emulsions with mineral & vegetable oils, paraffin and waxes. Solvent for casein, shellac, dyes. Fatty acid soaps used in dry-cleaning, cosmetics, household detergents, and emulsions. Wool scouring, textile; antifume agent and water-repellent, dispersion agent; corrosion inhibitor; softening agent, emulsifier, humectant and plasticizer, chelating agent; and rubber accelerator..
Uses advised against No information available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1B

Label elements

Warning

Hazard statements

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



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Wear eye/face protection

Precautionary Statements - Response

Specific treatment (see .? on this label)
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 ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Triethanolamine 102-71-6	102-71-6	99-100	*
Diethanolamine 111-42-2	111-42-2	0.1-0.9	*

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126).

4. FIRST AID MEASURES

Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.
Eye Contact:	Flush eye with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
Most important symptoms and effects, both acute and delayed	
Symptoms	Causes eye irritation. Contact causes skin irritation. May cause allergic skin reaction. Ingestion may cause nausea, vomiting, and diarrhea. May affect the cardiovascular system. May affect the liver. It may affect the kidneys. Central nervous system effects.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:	Use dry chemical, CO ₂ , water spray or "alcohol" foam.
Unsuitable Extinguishing Media:	High volume water jet. Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products:	Carbon monoxide; Carbon dioxide; nitrogen oxides; ammonia; hydrogen cyanides
Specific hazards:	May be combustible at high temperatures. May be ignited by heat, sparks or flames. Container explosion may occur under fire conditions or when heated.

Special Protective Actions for Firefighters

Specific Methods:	For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal; do not scatter the material.
Special Protective Equipment for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth).

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Hygroscopic. Air sensitive. Protect from light. Sensitive to light. Store in light-resistant containers. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

U.S Occupational Exposure Limits: Not determined

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Triethanolamine - 102-71-6	None	None	5 mg/m ³ TWA	None
Diethanolamine - 111-42-2	None	3 ppm TWA 15 mg/m ³ TWA	1 mg/m ³ TWA inhalable fraction and vapor	None

Canada

Canada Occupational Exposure Limits: Not determined

Components	Alberta	British Columbia	Ontario	Quebec
Triethanolamine - 102-71-6	5 mg/m ³ TWA	5 mg/m ³ TWA	0.5 ppm TWA 3.1 mg/m ³ TWA	5 mg/m ³ TWAEV
Diethanolamine - 111-42-2	2 mg/m ³ TWA	2 mg/m ³ TWA	1 mg/m ³ TWA inhalable fraction and vapor	3 ppm TWAEV 13 mg/m ³ TWAEV

Australia and Mexico

Occupational Exposure Limits for Australia and Mexico: Not determined

Components	Australia	Mexico
Triethanolamine 102-71-6	5 mg/m ³ TWA	None
Diethanolamine 111-42-2	3 ppm TWA 13 mg/m ³ TWA	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles.

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.

Respiratory protection: Respiratory protection is not necessary for normal handling. Good room ventilation or use of local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent. .

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

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Physical state: Liquid.	Appearance: Viscous.	Color: Colorless. Light yellow.
Odor: Slight. Ammonia.	Taste No information available	Formula: C ₆ H ₁₅ NO ₃
Molecular/Formula weight: 149.19	Flash point (°C): 179	Flashpoint (°C/°F): 179°C/354.2°F 190.5°C/374.9°F
Flash Point Tested according to: Closed cup Open cup	Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available
Autoignition Temperature (°C/°F): 324°C/615.2°F	pH: No information available	Melting point/range(°C/°F): 17.9-21°C/64.2-69.8 °F
Boiling point/range(°C/°F): 335°C/635 °F	Decomposition temperature(°C/°F): No information available	Specific gravity: 1.120-1.128
Bulk density: No information available	Vapor pressure @ 20°C (kPa): No information available	Density (g/cm³): 1.124 @ 20 deg. C
Evaporation rate: No information available	Vapor density: 5.14	VOC content (g/L): No information available
Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): -2.53	Viscosity: No information available
Miscibility: Miscible with Methanol Miscible with water Miscible with Acetone	Solubility: Completely soluble in water Solubility in Water: 149g/l @ 20 °C Soluble in Chloroform Soluble in Benzene Slightly soluble in Petroleum Ether Soluble in Ether Slightly soluble in Carbon Tetrachloride Solubility in Carbon tetrachloride: 0.4% Solubility in Ether: 1.6% Solubility in Benzene: 4.2%	

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents
Reactive with acids
Reactive with metals

Chemical stability

Stability:

Stable at normal conditions. Hygroscopic. Sensitive to light. Exposure to light accelerates decomposition. Sensitive to air..

Possibility of Hazardous Reactions:

Hazardous polymerization does not occur

Conditions to avoid:

Heat. Ignition sources. Exposure to light. It darkens on exposure to light. Exposure to air. Becomes yellow on exposure to air. Exposure to moist air. Exposure to moisture. Incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Metals.

Hazardous decomposition products: Carbon monoxide. Carbon dioxide. Nitrogen oxides (NOx). Ammonia. Hydrogen cyanides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Skin. Eyes.

Acute Toxicity

Component Information

Triethanolamine - 102-71-6

LD50/oral/rat = 4190 mg/kg Oral LD50 Rat

LD50/oral/mouse = No information available

LD50/dermal/rabbit = 20 mL/kg Dermal LD50Rabbit

LD50/dermal/rat = > 16 mL/kg Dermal LD50 Rat

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50information = 7300-11260 mg/kg LD50 Oral Rat (European Commission IUCLID dataset)
2200 mg/kg LD50 Oral Rabbit (RTECS)

Diethanolamine - 111-42-2

LD50/oral/rat = 0.62 mL/kg Oral LD50 Rat [LOLI; RTECS]

780-2830 mg/kg [European Chemicals Bureau IUCLID dataset]

LD50/oral/mouse = 2200 mg/kg [European Chemicals Bureau IUCLID dataset]

3300 mg/kg [RTECS; European Chemicals Bureau IUCLID dataset]

LD50/dermal/rabbit = 12200-12970 mg/kg [European Chemicals Bureau IUCLID dataset]

LD50/dermal/rat = No information available

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 4190mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = No information available

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = 20mL/kg

LD50/dermal/rat

VALUE -Acute Tox Dermal = >16ml/kg

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Contact causes skin irritation. Mildly to moderately irritating to the skin. May cause burning sensation, itching, redness. It may be absorbed through the skin. May cause allergic skin reaction.

Eye Contact: Causes serious eye irritation. Causes lacrimation. Causes a burning sensation or pain. May cause transient corneal injury.

Inhalation Due to the low vapor pressure, inhalation is not likely to be a significant route of exposure. Inhalation of mist may cause respiratory tract irritation.

Ingestion Ingestion: Causes gastrointestinal (digestive) tract irritation with nausea, vomiting, hypermotility, and diarrhea. May also affect behavior/central nervous system (convulsions), urinary system

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated skin contact may cause allergic contact dermatitis
Prolonged or repeated skin absorption may affect the liver and kidneys
Prolonged or repeated inhalation may affect the liver, blood, urinary system and cardiovascular system
Prolonged or repeated ingestion may affect the liver, and kidneys
Prolonged or repeated skin contact/absorption may affect behavior/central nervous system (irritability)

Sensitization: May cause sensitization by skin contact

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Triethanolamine	Not listed	Group 3 - Monograph 77 [2000]	Not listed	Not listed	Not listed	Not listed
Diethanolamine	A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans	Group 2 B - Monograph 101 [2012] Monograph 77 [2000]	Not listed	Present	Not listed	Not listed

*IARC (International Agency for Research on Cancer)
Group 3 - Not classifiable as to its carcinogenicity to humans*

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Triethanolamine - 102-71-6

Freshwater Algae Data: 169 mg/L EC50 *Desmodesmus subspicatus* 96 h
216 mg/L EC50 *Desmodesmus subspicatus* 72 h
Freshwater Fish Species Data: 10600 - 13000 mg/L LC50 *Pimephales promelas* 96 h flow-through 1
450 - 1000 mg/L LC50 *Lepomis macrochirus* 96 h static 1
1000 mg/L LC50 *Pimephales promelas* 96 h static 1

Diethanolamine - 111-42-2

Freshwater Algae Data: 2.1 - 2.3 mg/L EC50 *Pseudokirchneriella subcapitata* 96 h
7.8 mg/L EC50 *Desmodesmus subspicatus* 72 h
Freshwater Fish Species Data: 1200 - 1580 mg/L LC50 *Pimephales promelas* 96 h static 1
4460 - 4980 mg/L LC50 *Pimephales promelas* 96 h flow-through 1
600 - 1000 mg/L LC50 *Lepomis macrochirus* 96 h static 1
Water Flea Data: 55 mg/L EC50 *Daphnia magna* 48 h

Persistence and degradability: No information available

Bioaccumulative potential: Potential for bioconcentration in aquatic organisms is low.

Mobility: It is expected to have very high mobility based on estimated Koc.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Triethanolamine	None	None	None	None
Diethanolamine	None	None	None	None

14. TRANSPORT INFORMATION

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DOT

UN-No:	Not Regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	Not applicable
Packing Group:	None
ERG No:	No information available
Marine Pollutant	No data available
DOT RQ (lbs):	No information available
Transport Regulation Logo:	

TDG (Canada)

UN-No:	Not regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available

ADR

UN-No:	Not regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Packing Group:	No information available
Subsidiary Risk:	No information available
Classification Code:	No information available
Description:	No information available
CEFIC Tremcard No:	No information available

IMO / IMDG

UN-No:	Not regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Description:	No information available
IMDG Page:	No information available
Marine Pollutant	No
MFAG:	No information available
Maximum Quantity:	No information available

RID

UN-No:	Not regulated
Proper Shipping Name:	No information available
Hazard Class:	No information available
Subsidiary Risk:	No information available
Packing Group:	No information available
Classification Code:	No information available
Description:	No information available

ICAO

UN-No:	Not regulated
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14. TRANSPORT INFORMATION

Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

IATA

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Triethanolamine	Present	Present KE-25940	Present	Present (2)-308	Present[29507]	Present	Present 203-049-8
Diethanolamine	Present	Present KE-20959	Present	Present (2)-354 (2)-302	Present[11481]	Present	Present 203-868-0

U.S. Regulations

Triethanolamine

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
Pennsylvania RTK: Present
RI RTK - Hazardous Substances List: Present
Minnesota - Hazardous Substance List: Present

Diethanolamine

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey (EHS) List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
RI RTK - Hazardous Substances List: Present
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
1 lb RQ
Louisiana Reportable Quantity List for Pollutants: 100lbfinal RQ
45.4kgfinal RQ
California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Triethanolamine	Not Listed	Not Listed	Not Listed	Not Listed
Diethanolamine	carcinogen	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
Triethanolamine	None	None	None	None	None
Diethanolamine	100 lb final RQ 45.4 kg final RQ	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Triethanolamine	Not Applicable	04/13/1989 12/19/1995
Diethanolamine	Not Applicable	04/13/1989 06/30/1998

Canada

WHMIS hazard class:

Non-controlled

Triethanolamine

Uncontrolled product according to WHMIS classification criteria

Diethanolamine

D2A D2B

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Triethanolamine	1 %
Diethanolamine	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Triethanolamine	Present	Not Listed
Diethanolamine	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Triethanolamine	Not listed	Not listed
Diethanolamine	Not listed	Not listed

EU Classification

R-phrase(s)

not determined

S -phrase(s)

none

Components	Classification	Concentration Limits:	Safety Phrases
Triethanolamine		No information	

Diethanolamine	Xi;R38-41 Xn;R22-48/22	No information	S(2)-S26-S36/37/39-S46
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The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

None.

16. OTHER INFORMATION

Preparation Date: 2/17/2015
Revision Date: 2/27/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet