1. Product and Company Identification

Product identifier: DRILL-TERGE™

Version No.: 10

Issue date: 25-September-2011

Revision date: 13-September-2016

Supersedes date: 05-September-2013

Chemical description: Liquid

CAS #: Not available.

Product use: Mixture

Manufacturer information: CETCO, an MTI Company
2870 Forbs Avenue
Hoffman Estates, IL 60192
United States
safetydata@mineralstech.com
http://www.cetco.com/

General Information: 800 527-9948

2. Hazards Identification

Emergency overview: WARNING

Cancer hazard. Irritating to eyes and skin. May cause sensitisation by skin contact.

Potential health effects:

- Routes of exposure
  - Inhalation: Ingestion. Skin contact. Eye contact.
  - Eyes: Contact with eyes may cause irritation. Avoid contact with eyes. This product may cause slight irritation to the eyes.
  - Skin: May cause sensitisation by skin contact. May cause skin irritation. Avoid contact with the skin. Prolonged and/or repeated skin contact may result in mild irritation or redness.
  - Inhalation: May cause cancer by inhalation. May cause irritation of respiratory tract. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray. Inhalation of vapours or mists of the product may be irritating to the respiratory system.
  - Ingestion: Irritating. May cause nausea, stomach pain and vomiting. Do not ingest. Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhoea.

- Chronic effects: Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

- Signs and symptoms: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms may include redness, oedema, drying, defatting and cracking of the skin.

Potential environmental effects: May cause long-term adverse effects in the environment.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine</td>
<td>111-42-2</td>
<td>5 - 10</td>
</tr>
</tbody>
</table>

Other components below reportable levels: 60 - 100

Composition comments: Not applicable to consumer products. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
4. First Aid Measures

First aid procedures

**Inhalation**
If gas/fume/vapour/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention, if needed.

**Skin contact**
Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. If ingestion of a large amount does occur, call a poison control centre immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Notes to physician**
In case of shortness of breath, give oxygen. Symptoms may be delayed.

**General advice**
Take off contaminated clothing and shoes immediately. In case of shortness of breath, give oxygen. If you feel unwell, seek medical advice (show the label where possible). Get medical attention if symptoms occur. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Keep victim under observation. Keep victim warm.

5. Fire-fighting measures

**Flammable properties**
Pressurised container may explode when exposed to heat or flame.

**Extinguishing media**
- **Suitable extinguishing media**
  Dry chemical, CO2, water spray or regular foam. Use methods for the surrounding fire.
- **Unsuitable extinguishing media**
  Do not use water jet as an extinguisher, as this will spread the fire.

**Protection of firefighters**
- **Protective equipment for firefighters**
  Firefighters should wear full protective clothing including self contained breathing apparatus. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out.

**Explosion data**
- **Sensitivity to static discharge**
  Not available.
- **Sensitivity to mechanical impact**
  Not available.

**Hazardous combustion products**
Not available.

**General fire hazards**
This material will not burn.

6. Accidental Release Measures

**Personal precautions**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8.

**Environmental precautions**
Do not contaminate water.

**Methods for containment**
Stop leak if you can do so without risk. Dike the spilled material, where this is possible.
Should not be released into the environment.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Flush with plenty of water. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.

Methods for cleaning up

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid prolonged exposure. Do not get this material on clothing. When using do not eat or drink. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Avoid release to the environment. Keep away from heat and flame.

Storage

Store in a closed container away from incompatible materials. Keep out of the reach of children. Use care in handling/storage. Store away from incompatible materials (see Section 10 of the MSDS). Keep in a cool, well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>TWA</td>
<td>13 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Canada - Alberta OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.
Canada - British Columbia OELs: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation
Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas. Good general ventilation should be sufficient to control airborne levels. Local exhaust is suggested for use, where possible, in enclosed or confined spaces.

Personal protective equipment
Eye/face protection
Wear chemical goggles. Wear eye/face protection. Wear face-shield and protective suit for abnormal processing problems.

Skin protection
Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves. Chemical resistant gloves. The use of natural rubber gloves is recommended.

Respiratory protection
Not normally needed. If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Hand protection
Wear protective gloves.

9. Physical & Chemical Properties

Appearance
Clear.

Physical state
Liquid.

Form
Liquid.

Colour
Blue.

Odour
Slight.

Odour threshold
Not available.

pH
9.7 - 10.3

Vapour pressure
0.00005 hPa estimated

Vapour density
Not available.

Boiling point
100 °C (212 °F)

Melting point/freezing point
28 °C (82.4 °F) estimated

Solubility (water)
Not available.

Specific gravity
1.02

Relative density
Not available.

Flash point
153.1 °C (307.6 °F) estimated

Flammability limits in air, upper, % by volume
Not available.

Flammability limits in air, lower, % by volume
Not available.

Auto-ignition temperature
662.22 °C (1224 °F) estimated

Evaporation rate
Not available.

Percent volatile
65 % estimated

Partition coefficient (n-octanol/water)
Not available.
10. Chemical Stability & Reactivity Information

Chemical stability
Stable at normal conditions.

Conditions to avoid
Contact with incompatible materials. Avoid temperatures above 190°F (87.8°C).

Incompatible materials
Strong acids and strong bases

Hazardous decomposition products
Upon decomposition, this product may yield oxides of nitrogen and ammonia, carbon dioxide, carbon monoxide and other low molecular weight hydrocarbons.

Possibility of hazardous reactions
Will not occur.

11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>11.9 ml/kg</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>710 mg/kg</td>
</tr>
<tr>
<td><strong>Sensitisation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chronic effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ACGIH Carcinogens</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>A3  Confirmed animal carcinogen with unknown relevance to humans.</td>
<td></td>
</tr>
<tr>
<td><strong>IARC Monographs. Overall Evaluation of Carcinogenicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td>2B  Possibly carcinogenic to humans.</td>
<td></td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Serious eye damage/irritation</strong></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Reproductive effects</strong></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Teratogenicity</strong></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Synergistic materials</strong></td>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethanolamine (CAS 111-42-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>IC50</td>
<td>Algae</td>
</tr>
<tr>
<td></td>
<td>7.8 mg/l, 72 Hours</td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Daphnia</td>
</tr>
<tr>
<td></td>
<td>55 mg/l, 48 Hours</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fathead minnow (Pimephales promelas)</td>
</tr>
<tr>
<td></td>
<td>100 mg/l, 96 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fish</td>
<td>4710 mg/l, 96 Hours</td>
</tr>
<tr>
<td><strong>Ecotoxicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contains a substance which causes risk of hazardous effects to the environment. This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Environmental effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Based on the physical properties of this product, significant environmental persistence and bioaccumulation would not be expected.

Aquatic toxicity
Not available.

Persistence and degradability
Not available.

Partition coefficient
Diethanolamine -1.43

13. Disposal Considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

15. Regulatory information

Canadian regulations
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status
Controlled

WHMIS classification
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*"Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

*A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).
16. Other Information

Further information
This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

HMIS® ratings
Health: 2*
Flammability: 1
Physical hazard: 0

NFPA ratings
Health: 2
Flammability: 1
Instability: 0

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The manufacturer expressly does not make any representations, warranties, or guarantees as to its accuracy, reliability or completeness nor assumes any liability, for its use. It is the user's responsibility to verify the suitability and completeness of such information for each particular use.

Third party materials: Insofar as materials not manufactured or supplied by this manufacturer are used in conjunction with, or instead of this product, it is the responsibility of the customer to obtain, from the manufacturer or supplier, all technical data and other properties relating to these and other materials and to obtain all necessary information relating to them. No liability can be accepted in respect of the use of this product in conjunction with materials from another supplier. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. CETCO - Drilling Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Prepared by
Not available.

Revision Information
Product and Company Identification: Alternate Trade Names
Hazards Identification: Inhalation
Section 1: Hazardous ingredients
Fire-fighting measures: Unsuitable extinguishing media
Accidental Release Measures: Other information
Physical & Chemical Properties: Multiple Properties
Physical & Chemical Properties: Form
Chemical Stability & Reactivity Information: Incompatible materials
Disposal Considerations: Contaminated packaging
Regulatory information: Canadian regulations
GHS: Classification