1. Identification

1.1. Product identifier

Trade name: Protectosil® CIT

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified: For industrial use

Function: Corrosion inhibitor

1.3. Details of the supplier of the safety data sheet

Company: Evonik Corporation
299 Jefferson Road
Parsippany, NJ 07054-0677
USA

Telephone: 973-929-8000

Telefax: 973-929-8040

Email address: Product-Regulatory-Services@evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA: 800-424-9300

CHEMTREC MEXICO: 01-800-681-9531

CHEMTREC INTERNATIONAL: +1 703-527-3887 (collect calls accepted)

Product Regulatory Services: 973-929-8060

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 29CFR 1910.1200

- Flammable liquids: Category 3
  - H226
- Skin irritation: Category 2
  - H315
- Eye irritation: Category 2A
  - H319
- Acute aquatic toxicity: Category 3
  - H402

2.2. Label elements

Classification according to Regulation 29CFR 1910.1200
SAFETY DATA SHEET
Protectosil® CIT

Material no. 131910
Specification US
Version 9.0
Revision date 05/14/2015
Print date 09/16/2015
Page 2

Signal word Warning

Hazard statement
H226 - Flammable liquid and vapor.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H402 - Harmful to aquatic life.

Precautionary statement: Prevention
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P264 - Wash skin thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/ eye protection/ face protection.

Precautionary statement: Reaction
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 - If skin irritation occurs: Get medical advice/ attention.
P337 + P313 - If eye irritation persists: Get medical advice/ attention.
P362 - Take off contaminated clothing and wash before reuse.
P370 + P378 - In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Precautionary statement: Storage
P403 + P235 - Store in a well-ventilated place. Keep cool.

Precautionary statement: Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards
None known.

3. Composition/information on ingredients

Chemical nature
Silane preparation

- NJTSR No.56705700001-5318P >= 60% - <= 100%
  - CAS-No. Trade Secret
  - Flammable liquids Category 4
  - Skin irritation Category 2
  - Acute aquatic toxicity Category 3

- 2-diethylaminoethanol >= 1% - <5%
  - CAS-No. 100-37-8
  - Flammable liquids Category 3
  - Acute toxicity (Oral) Category 4
  - Acute toxicity (Inhalation) Category 3
  - Acute toxicity (Dermal) Category 3
  - Skin corrosion Category 1B
  - Serious eye damage Category 1
  - Acute aquatic toxicity Category 3
  - Chronic aquatic toxicity Category 3
4. First aid measures

4.1. Description of first aid measures

General advice
Remove contaminated or saturated clothing immediately and dispose of safely.

Inhalation
If aerosol or mists are inhaled, take affected persons out into the fresh air. Possible discomforts include severe irritation of mucus lining (nose, throat, eyes), cough, sneezing and flow of tears. In case of persistent discomfort, obtain medical attention immediately.

Skin contact
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention. Wash clothing before reuse. Destroy or thoroughly clean contaminated shoes before reuse.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Do not allow contaminated water to contact the unaffected eye or face during irrigation of an affected eye. Consult an ophthalmologist.

Ingestion
If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention. Never administer anything by mouth to an individual who rapidly losing consciousness, unconscious or convulsing.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms
After absorbing large amount of substance, apply therapy for irritative effects. If substance has been swallowed, early endoscopy is recommended in order to assess mucosa lesions in the esophagus and stomach which may appear. If necessary, suck away leftover substance. Allergic reactions cannot be excluded. Apply treatment of allergic reaction if necessary.

4.3. Indication of any immediate medical attention and special treatment needed

If required, therapy of irritative effect.
If substance has been swallowed:
Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear. If necessary, aspirate leftover substance.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media: water spray, Alcohol-resistant foam, Carbon dioxide (CO₂), dry powder

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture

Flammable liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint.

Burning will produce hazardous compounds including oxides of: carbon, nitrogen.

5.3. Advice for firefighters

Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA / NIOSH approved or equivalent) and full protective gear.

6. Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation. Use personal protective equipment.

6.2. Environmental precautions
Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.3. Methods and material for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Additional advice
Remove sources of ignition and ventilate area.
Run off may create fire or explosion hazard in sewer.
Assure sufficient ventilation.

7. Handling and storage
7.1. Precautions for safe handling
Use in the open air or with adequate ventilation. Wear personal protective equipment; see section 8. Keep away from heat, sparks, flames and other sources of ignition. Keep container tightly closed. Use only with adequate ventilation.
Vapors may spread long distances and travel to areas away from the work site before igniting or flashing back to the vapor source.

7.2. Conditions for safe storage, including any incompatibilities
Advice on protection against fire and explosion
Take precautionary measures against static charges, keep away from sources of ignition.
When repairs of the production system are to be made (e.g. welding work), the section to be repaired must be essentially free of product.
This material may have a low electrical conductivity and therefore may accumulate dangerous levels of static electricity. An ignitable vapor-air mixture can form inside storage tanks.

The user must be sure to dissipate static charge by careful bonding and grounding of all equipment and personnel involved in fluid transfer with continuity checks to prove effectiveness. Additional precautions against fire and explosion are the use of inert gas to purge vapor space; dip-pipes while filling vessels, especially lined vessels; grounded tank level floats; reduced flow velocity; self-closing valves on transfer lines and flame arrestors in vent lines.

Additional guidance on fire and explosion protection may be found in various consensus standards, including NFPA 30, 69 and 77 and API 2003 as well as OSHA regulation 29CFR1910.106.

Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

Storage
Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture.
Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.
8. Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Time Weighted Average (TWA):(ACGIH)</th>
<th>Skin designation:(ACGIH)</th>
<th>Permissible exposure limit:(OSHA Z1)</th>
<th>Skin designation:(OSHA Z1)</th>
<th>Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)</th>
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<tbody>
<tr>
<td>2-diethylaminoethanol</td>
<td>100-37-8</td>
<td>2 ppm</td>
<td></td>
<td></td>
<td>10 ppm 50 mg/m3</td>
<td></td>
<td>2 ppm 9.6 mg/m3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Can be absorbed through the skin.</td>
<td></td>
<td>Can be absorbed through the skin.</td>
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</tr>
</tbody>
</table>

8.2. Exposure controls

Engineering measures
Provide adequate ventilation.

Personal protective equipment

Respiratory protection
A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection
Glove material for example, butyl-rubber
Material thickness 0.5 mm
Break through time >= 480 min
Glove material for example, Fluorinated rubber (Viton)
Material thickness 0.4 mm
Break through time >= 480 min
The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.
Use impermeable gloves.

Eye protection
Use chemical splash goggles or face shield.

Skin and body protection
A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures
Avoid contact with skin, eyes and clothing. Do not inhale vapors or aerosols. Do not eat, drink, or smoke when using the product. Remove contaminated or saturated clothing.
9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
Color: colorless to yellowish
Form: liquid
Odor: fruity, ester-like, slightly amine-like
Odor Threshold: not determined

pH: 11 (20 °C)
Method: DIN 38404-C5

Melting point/range: < -65 °C

Boiling point/range: ca. 186 °C (1013 hPa)
Method: DIN 51 751

Flash point: > 50 °C
Method: DIN EN ISO 2719 (Pensky-Martens, Closed Cup)

Evaporation rate: not determined

Flammability (solid, gas): no data available

Vapor density: no data available

Density: 0.882 g/cm³ (20 °C)
Method: DIN 51757

Water solubility: not miscible
Decomposition by hydrolysis

Partition coefficient: n-octanol/water: no data available

Autoignition temperature: not determined

Thermal decomposition: not determined

Viscosity, dynamic: not determined

9.2. Other information

Explosiveness: no data available

% VOC (gm/l): 400

10. Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid
Keep away from heat and sources of ignition.

10.5. Incompatible materials
water

10.6. Hazardous decomposition products
Ethanol in case of hydrolysis

11. Toxicological information

11.1. Information on toxicological effects

Acute inhalation toxicity Acute toxicity estimate: > 40 mg/l / 4 h / vapour
Method: Calculation method

Acute dermal toxicity Acute toxicity estimate: > 5000 mg/kg
Method: Calculation method

Skin irritation irritating

The data are derived from the labeling according to the EC Dangerous Preparations Directive.

carcinogenicity assessment Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.

Further information No data is available on the product itself.

Toxicological information on components

12. Ecological information

12.1. Toxicity
No ecotoxicological studies are available on the mixture.

12.2. Persistence and degradability
Biodegradability No data available

12.3. Bioaccumulative potential
Bioaccumulation No data available

12.4. Mobility in soil
Mobility No data available

12.5. Other adverse effects
Further Information No further information available
13. Disposal considerations

13.1. Waste treatment methods

Product
Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

Uncleaned packaging
Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.
Incorrect disposal or reuse of this container is illegal and can be dangerous.
If there is product residue in the emptied container, follow directions for handling on the container's label.
Other countries: observe the national regulations.

14. Transport information

D.O.T. Road/Rail
14.1. UN number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S.(2-Diethylaminoethanol)
14.3. Transport hazard class(es): 3
14.4. Packing group: III
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: No

Air transport ICAO-TI/IATA-DGR
14.1. UN number: UN 1993
14.2. UN proper shipping name: Flammable liquid, n.o.s.(2-Diethylaminoethanol)
14.3. Transport hazard class(es): 3
14.4. Packing group: III
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes
   IATA-C: ERG-Code 3L
   Maximum Net Quantity per Package 220 L
   IATA-P: ERG-Code 3L
   Maximum Net Quantity per Package 60 L

Sea transport IMDG-Code/GGVSee (Germany)
14.1. UN number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S.(2-Diethylaminoethanol)
14.3. Transport hazard class(es): 3
14.4. Packing group: III
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: No
   EmS: F-E, S-E

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: for transport approval see regulatory information
15. Regulatory information

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Fire Hazard

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

- None listed
An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

**HMIS Ratings**

- Health: 2
- Flammability: 2
- Physical Hazard: 1

**NFPA Ratings**

- Health: 2
- Flammability: 2
- Reactivity: 1

16. **Other information**

**Further information**

Revision date: 05/14/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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<td>05/14/2015</td>
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<td>Order number</td>
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- **VOC**: Volatile organic compounds
- **WHMIS**: Workplace Hazardous Materials Information System
- **WHO**: World Health Organization