



**SAFETY DATA SHEET****Protectosil® CIT**

Material no.		Version	<b>9.0 / US</b>
Specification	<b>131910</b>	Revision date	<b>05/14/2015</b>
Order number		Print date	<b>09/16/2015</b>
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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

<b>• NJTSR No.56705700001-5318P</b>		<b>&gt;= 60% - &lt;= 100%</b>
CAS-No.	Trade Secret	
Flammable liquids		Category 4
Skin irritation		Category 2
Acute aquatic toxicity		Category 3
<b>• 2-diethylaminoethanol</b>		<b>&gt;= 1% - &lt; 5%</b>
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

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**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 (CO<sub>2</sub>), 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.

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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.

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**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.

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**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.

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**8. Exposure controls/personal protection****8.1. Control parameters**

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

**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.

Personal protective equipment that provides a barrier to prevent dermal exposure to this substance is required.

**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.

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**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/cm <sup>3</sup> (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**

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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

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**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**

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**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

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**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<br>Maximum Net Quantity per Package 220 L |
| IATA-P:                             | ERG-Code 3L<br>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



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**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

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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

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**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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**Legend**

<b>ACC</b>	American Chemistry Council
<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>ACS</b>	Advisory Committee on Sustainability
<b>ADI</b>	Acceptable Daily Intake
<b>ASTM</b>	American Society for Testing and Materials
<b>ATP</b>	Adaptation to Technical Progress
<b>BCF</b>	Bioconcentration factor
<b>BOD</b>	Biochemical oxygen demand
<b>c.c.</b>	closed cup
<b>CAO</b>	Cargo Aircraft Only
<b>Carc</b>	Carcinogen
<b>CAS</b>	Chemical Abstract Services
<b>CDN</b>	Canada
<b>C EPA</b>	Canadian Environmental Protection Act
<b>CERCLA</b>	Comprehensive Environmental Response – Compensation and Liability Act
<b>CFR</b>	Code of Federal Regulations
<b>CMR</b>	carcinogenic- mutagenic-toxic for reproduction
<b>COD</b>	Chemical oxygen demand
<b>DIN</b>	German Institute for Standardization
<b>DM EL</b>	Derived minimum effect level
<b>DNEL</b>	Derived no effect level
<b>DOT</b>	Department of Transportation
<b>EC50</b>	half maximal effective concentration
<b>EPA</b>	Environmental Protection Agency
<b>ErC50</b>	Reduction of Growth Rate
<b>ERG</b>	Emergency Response Guide Book
<b>FDA</b>	Food and Drug Administration
<b>GHS</b>	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
<b>GLP</b>	Good Laboratory Practice
<b>GMO</b>	Genetic Modified Organism
<b>HCS</b>	Hazard Communication Standard
<b>HMIS</b>	Hazardous Materials Identification System
<b>IARC</b>	International Agency for Research on Cancer
<b>IATA</b>	International Air Transport Association
<b>IBC</b>	Intermediate Bulk Container
<b>ICAO-TI</b>	International Civil Aviation Organization- Technical Instructions
<b>ICCA</b>	International Council of Chemical Association
<b>ID</b>	Identification number
<b>IMDG</b>	International Maritime Dangerous Goods
<b>IUPAC</b>	International Union of Pure and Applied Chemistry
<b>ISO</b>	International Organization for Standardization
<b>LC50</b>	50 % Lethal Concentration
<b>LD50</b>	50 % Lethal Dose
<b>L(E)C 50</b>	LC50 or EC50
<b>LOA EL</b>	Lowest observed adverse effect level
<b>LOEL</b>	Lowest observed effect level
<b>MARPOL</b>	International Convention for the Prevention of Pollution from Ships
<b>NFPA</b>	National Fire Protection Association
<b>NOAEL</b>	No observed adverse effect level
<b>NOEC</b>	no observed effect concentration
<b>NOEL</b>	no observed effect level
<b>o. c.</b>	open cup
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>OEL</b>	Occupational Exposure Limit
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PBT</b>	Persistent, bioaccumulative, toxic
<b>PEC</b>	Predicted effect concentration
<b>PNEC</b>	Predicted no effect concentration
<b>RQ</b>	Reportable Quantity
<b>SDS</b>	Safety Data Sheet
<b>STOT</b>	Specific Target Organ Toxicity
<b>UN</b>	United Nations
<b>vPvB</b>	very persistent, very bioaccumulative

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<b>VOC</b>	Volatile organic compounds
<b>WHMIS</b>	Workplace Hazardous Materials Information System
<b>WHO</b>	World Health Organization