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 USA
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

Statutory basis: Classification according to Regulation 29CFR 1910.1200
Symbol(s):

Signal word	Warning
Hazard statement	H226 - Flammable liquid and vapour. 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 conciousness, 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

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

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.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

physical state	liquid	
Colour	colorless to yellowish	
Form	liquid	
Odour	fruity, ester-like, slightly amine-like	
Odour 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	
Vapour 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 transportapproval 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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Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygenists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(E)C50	LC50 or EC50
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative

voc	volatile organic compounds
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization