1. Identification

1.1. Product identifier

Trade name: Protectosil® CHEM-TRETE® PB VOC
Chemical Name: Protectosil® CHEM-TRETE® PB VOC

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified: For industrial use

1.3. Details of the supplier of the safety data sheet

Company: Evonik Corporation
Address: 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 2, H225
- Skin irritation: Category 2, H315

2.2. Label elements

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

Hazard statement:
H225 - Highly flammable liquid and vapor.
H315 - Causes skin irritation.

Precautionary statement:
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.
P280 - Wear protective gloves/eye protection/face protection.

Precautionary statement:
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P332 + P313 - If skin irritation occurs: 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:
P403 + P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to an approved waste disposal plant.

2.3. Other hazards
None known.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol; ethyl alcohol</td>
<td>&gt;= 30% - &lt; 60%</td>
</tr>
<tr>
<td>Triethoxyisobutylsilane</td>
<td>&gt;= 10% - &lt; 30%</td>
</tr>
<tr>
<td>Triethoxyoctylsilane</td>
<td>&gt;= 10% - &lt; 30%</td>
</tr>
</tbody>
</table>

4. First aid measures

4.1. Description of first aid measures

**Inhalation**
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention.

**Skin contact**
Remove contaminated clothing/shoes. Flush skin with water. Follow by washing with soap and water. If symptoms develop or persist, obtain medical attention. Wash clothing before reuse.
Eye contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes or until all material has been removed. Obtain medical attention.

Ingestion
Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

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

Symptoms
None known

4.3. Indication of any immediate medical attention and special treatment needed
None known.

5. Fire-fighting measures

5.1. Extinguishing media
Suitable extinguishing media: Use water spray or fog, foam, dry chemical or CO2.
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.

5.3. Advice for firefighters
Containers can build up pressure if exposed to heat (fire). Cool with water spray. 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
Remove all sources of ignition. Ventilate the area. Wear personal protective equipment; see section 8.

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
Ensure 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
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 in a cool place.
Keep container tightly closed in a dry and well-ventilated place.
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>CAS-No.</th>
<th>Control parameters</th>
<th>Permissible exposure limit (OSHA Z1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>1000 ppm</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td>1000 ppm</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Short Term Exposure Limit (STEL) (ACGIH)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000 ppm</td>
<td>1900 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Time Weighted Average (TWA): (TN OEL)</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Engineering measures
Use this product preferably in a closed system, or use process enclosures, local exhaust ventilation or other engineering controls to minimize airborne exposure.

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
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.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>clear</td>
</tr>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Strong odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>pH</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>12.22 °C</td>
</tr>
<tr>
<td>Method:</td>
<td>Pensky-Martens C.C.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not determined</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>3.5 %(V)</td>
</tr>
</tbody>
</table>

Upper explosion limit 15 %(V)
Vapor pressure not applicable
Vapor density no data available
Relative vapor density no data available
Relative density 0.802
Density no data available
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  
Vapors can form explosive mixtures with air.

% VOC (gm/l)  
600

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**  
Avoid high temperatures and sources of ignition.

10.5. **Incompatible materials**  
Water, Acids, oxidizing substances

10.6. **Hazardous decomposition products**  
Ethanol in case of hydrolysis

Stable under normal conditions.
Product will not undergo hazardous polymerization.

11. **Toxicological information**

11.1. **Information on toxicological effects**

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

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

Further information  
The toxicological properties of this product have not been fully investigated.

**Toxicological information on components**  
**Ethanol; ethyl alcohol**

Acute oral toxicity  
LD50 Rat: 6200 mg/kg  
Test substance: Ethanol (IUCLID)

Acute inhalation toxicity  
LC50 Rat: 95.6 mg/l / 4 h  
Test substance: Ethanol RTECS

Skin irritation  
Rabbit  
Not irritating.  
Method: OECD Test Guideline 404
Test substance: Ethanol
The liquid removes oil from the skin. Repeated skin contact can cause dry and fragile skin.

Sensitization
Magnusson & Kligman: not sensitizing
Test substance: Ethanol (IUCLID)

Mutagenicity assessment
This product may cause mutagenic effects.

**Triethoxyisobutylsilane**

**Acute oral toxicity**
LD50 Rat: > 5000 mg/kg
Method: OECD Test Guideline 401

**Acute inhalation toxicity**
LC50 Rat: 5.88 mg/l / 4 h / Aerosol
Method: OECD Test Guideline 403

**Acute dermal toxicity**
LD50 Rat: > 2000 mg/kg
Method: OECD Test Guideline 402

**Skin irritation**
Rabbit irritating
Method: OECD Test Guideline 404

**Eye irritation**
Rabbit
Not irritating.
Method: OECD Test Guideline 405

**Sensitization**
Maximization test Guinea pig: Does not cause skin sensitization.
Method: OECD Test Guideline 406

**Repeated dose toxicity**
Oral Rat / 28-day
NOAEL: > 1000 mg/kg
Method: OECD Test Guideline 407

**Gentoxicity in vitro**
Ames test Salmonella typhimurium
negative
Method: OECD TG 471

Chromosome aberration test in vitro Chinese hamster (V 79 -cells)
negative
Method: OECD TG 473

Chromosome aberration test in vitro Chinese hamster (CHO K1 -cells)
negative
Method: OECD TG 476

**Gentoxicity in vivo**
chromosomal aberration Mouse Oral
negative
Method: OECD TG 474

**Toxicity to reproduction**
Animal model trials have produced no evidence of fertility damage.
Triethoxyoctylsilane

**Acute oral toxicity**
LD50 Rat: > 5110 mg/kg
Method: OECD Test Guideline 401

**Acute inhalation toxicity**
LC0 Rat: 22 ppm / 4 h / vapor
Method: OECD Test Guideline 403
maximum concentration in the test: no animals died.

**Acute dermal toxicity**
LD50 Rabbit: 6730 mg/kg
Method: OECD Test Guideline 402

**Skin irritation**
Rabbit irritant
Method: OECD Test Guideline 404

**Eye irritation**
Rabbit not irritating
Method: OECD Test Guideline 405

**Sensitization**
maximization test Guinea pig: No sensitizing effects.
Method: OECD Test Guideline 406
Test substance: Structurally similar substance

**Repeated dose toxicity**
Oral Rat / 28-day
NOAEL: 300 mg/kg
Method: OECD TG 422

**Genotoxicity in vitro**
Ames test Salmonella typhimurium
negative
Method: OECD TG 471
chromosomal aberration Chinese hamster (CHO K1 -cells)
negative
Method: OECD TG 473

Genetic mutation in mammal cells TK +/- mouse lymphoma cell (L5178Y)
negative
Method: OECD TG 476

**Toxicity to reproduction**
Screening for reproductive/developmental toxicity Oral Rat
Number of exposures: daily
NOAEL (No Observed Adverse Effect Level) of parents:
300 mg/kg
Method: OECD TG 422

Screening for reproductive/developmental toxicity Oral Rat
Number of exposures: daily
NOAEL F1:
300 mg/kg
Method: OECD TG 422

12. Ecological information
12.1. Toxicity

*no data available*

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 ecotoxicological studies are available.*

13. Disposal considerations

13.1. Waste treatment methods

**Product**

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

**Uncleaned packaging**

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information

**D.O.T. Road/Rail**

14.1. UN number: UN 1170
14.2. UN proper shipping name: Ethanol solution
14.3. Transport hazard class(es): 3
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: No

**Air transport ICAO-TI/IATA-DGR**

14.1. UN number: UN 1170
14.2. UN proper shipping name: Ethanol solution
14.3. Transport hazard class(es): 3
14.4. Packing group: II
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes
IATA-C: ERG-Code 3L
Maximum Net Quantity per Package 60 L

IATA-P: ERG-Code 3L
Maximum Net Quantity per Package 5 L

Sea transport IMDG-Code/GGVSee (Germany)
14.1. UN number: UN 1170
14.2. UN proper shipping name: ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: No

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
The Listing requirements of the Right to Know (RTK) legislation varies by state. All information for NJ, PA, MA and other states can be derived from the listing of hazardous and non-hazardous components in section 2 and 15 of this MSDS.

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

<table>
<thead>
<tr>
<th>Health</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>1</td>
</tr>
</tbody>
</table>

NFPA Ratings

<table>
<thead>
<tr>
<th>Health</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1</td>
</tr>
</tbody>
</table>

16. Other information

Further information
Revision date 05/07/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.
This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. EVONIK EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.
Legend

ACC    American Chemistry Council
ACGIH  American Conference of Governmental Industrial Hygienists
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
C EPA   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
DM EL  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 Grow th 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)C 50 LC50 or EC50
LOA EL 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   Organization for Economic Cooperation and Development
OEL    Occupational Exposure Limit
OSHA   Occupational Safety and Health Administration
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 |