

SAFETY DATA SHEET**Protectosil® 300**

| | | | |
|---------------|---------------|---------------|-------------------|
| Material no. | | Version | 6.1 / US |
| Specification | 158778 | Revision date | 05/31/2015 |
| Order number | | Print date | 09/16/2015 |
| | | Page | 2 10 / 12 |

| | |
|-------------------------------------|--|
| Signal word | Warning |
| Hazard statement | H227 - Combustible liquid. H315 - Causes skin irritation. H402 - Harmful to aquatic life. |
| Precautionary statement: Prevention | P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P264 - Wash skin thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective gloves/ eye protection/ face protection. |
| Precautionary statement: Reaction | P302 + P352 - IF ON SKIN: Wash with plenty of water/ soap. P332 + P313 - If skin irritation occurs: Get medical advice/ attention. P362 + P364 - Take off contaminated clothing and wash it 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

| | |
|---|---------------------------------------|
| • Isobutyltriethoxysilane | >= 60% - <= 100% |
| CAS-No. | 17980-47-1 |
| Flammable liquids | Category 4 |
| Skin irritation | Category 2 |
| Acute aquatic toxicity | Category 3 |
| • Polysiloxane, containing propyl- and ethoxy groups | >= 20% - <= 40% |
| Remarks | Not a hazardous substance or mixture. |

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 formed: Take affected persons out into the fresh air.

If symptoms persist, consult a physician for treatment.

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.

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| Order number | | Print date | 09/16/2015 |
| | | Page | 3 10 / 12 |

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

If swallowed and conscious, rinse out mouth with water. Have patient drink plenty of water in small sips immediately for dilution.

Call a physician immediately.

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

Combustible 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

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**

Wear personal protective equipment; see section 8. Vapors may spread long distances and travel to areas away from the work site before igniting or flashing back to the vapor source.

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| Order number | | Print date | 09/16/2015 |
| | | Page | 4 10 / 12 |

Avoid moisture. Keep away from heat. Keep away from sparks, flames and other sources of ignition. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use with adequate ventilation. The need for grounding and bonding of containers in accordance with OSHA 29 CFR 1910.106 and NFPA 77 should be assessed for all product transfers. Follow all MSDS/label precautions even after the container is emptied because it may retain product residues. Wash thoroughly after handling.

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 containers tightly closed in a cool, well-ventilated place. Protect from moisture.

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

Contains no substances with occupational exposure limit values.

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

Glove material for example, butyl-rubber
Material thickness 0.5 mm
Break through time \geq 480 min
Glove material for example, Fluorinated rubber (Viton)
Material thickness 0.4 mm
Break through time \geq 480 min

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| Order number | | Print date | 09/16/2015 |
| | | Page | 5 10 / 12 |

Use impermeable gloves.

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.

Selection of protective gloves to meet the requirements of specific workplaces.

Suitability for specific workplaces should be clarified with protective glove manufacturers.

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 | |
| Form | liquid | |
| Odor | characteristic | |
| Odor Threshold | no data available | |
| pH | not determined. | |
| Melting point/freezing point | no data available | |
| Boiling point/range | no data available | |
| Flash point | 66 °C | |
| | Method: DIN 51758 | |
| Evaporation rate | no data available | |
| Flammability (solid, gas) | no data available | |
| Lower explosion limit | no data available | |
| Upper explosion limit | no data available | |
| Vapor pressure | no data available | |
| Vapor density | no data available | |
| Relative density | no data available | |
| Density | ca. 0.94 g/cm ³ | (20 °C) |
| Solubility/qualitative | no data available | |

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| Order number | | Print date | 09/16/2015 |
| | | Page | 6 10 / 12 |

Partition coefficient: n-octanol/water no data available

Autoignition temperature not determined

Thermal decomposition no data available

Viscosity, dynamic no data available

Viscosity, kinematic no data available

9.2. Other information

Explosiveness Vapors can form explosive mixtures with air.

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

Possibility of hazardous reactions No dangerous reactions known.

10.4. Conditions to avoid

Keep away from heat and sources of ignition.

10.5. Incompatible materials

Water

10.6. Hazardous decomposition products

No data available

This product is not stable under normal storage conditions.
Product will not undergo hazardous polymerization.

11. Toxicological information**11.1. Information on toxicological effects**

Acute oral toxicity LD50 Rat: > 5000 mg/kg
Related to substance: triethoxyisobutylsilane

Acute inhalation toxicity Acute toxicity estimate: 8.4 mg/l / 4 h / dust/mist
Method: Calculation method

Skin irritation Irritating to skin.
Method: OECD Test Guideline 405
Related to substance: triethoxyisobutylsilane

Eye irritation Not irritating.
Method: OECD Test Guideline 405
Related to substance: triethoxyisobutylsilane

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| Order number | | Print date | 09/16/2015 |
| | | Page | 7 10 / 12 |

| | |
|----------------------------|---|
| Gentotoxicity in vitro | No evidence of mutagenic effects have been reported. Related to substance: triethoxyisobutylsilane |
| carcinogenicity assessment | Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA. |

Toxicological information on components**12. Ecological information****12.1. Toxicity**

no data available

12.2. Persistence and degradability

| | |
|------------------|---|
| Biodegradability | Exposure time: 28 d |
| | Result: 12 % Not readily biodegradable. |
| | Method: OECD 301 C |

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, state, provincial and local regulations.

Since empty containers retain product residue, follow MSDS and label warnings even after container is emptied.

Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

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**

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| Specification | 158778 | Revision date | 05/31/2015 |
| Order number | | Print date | 09/16/2015 |
| | | Page | 8 10 / 12 |

- 14.1. UN number: UN 1993
14.2. UN proper shipping name: Combustible liquid, n.o.s. (Triethoxyisobutylsilane)
14.3. Transport hazard class(es): C
14.4. Packing group: III
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
ROAD: Not regulated in packages 450 liter or less. (CFR)
RAIL: Not regulated in packages 450 liter or less. (CFR)

Air transport ICAO-TI/IATA-DGR**Not dangerous according to transport regulations.**

- 14.1. UN number: --
14.2. UN proper shipping name: --
14.3. Transport hazard class(es): --
14.4. Packing group: --
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes
IATA-C: Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).
IATA-P: Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).

Sea transport IMDG-Code/GGVSee (Germany)**Not dangerous according to transport regulations.**

- 14.1. UN number: --
14.2. UN proper shipping name: --
14.3. Transport hazard class(es): --
14.4. Packing group: --
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
Not classified as hazardous sea cargo (IMDG code)
FOR USA ONLY: In packagings exceeding 450 L, this product must be classified, placarded, marked and shipped as Combustible Liquid to the USA.
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

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| | | | |
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| Order number | | Print date | 09/16/2015 |
| | | Page | 9 10 / 12 |

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:

- Fire Hazard
- Acute Health Hazard

SARA Title III Section 313 Reportable Substance s

If listed below, components are subject to the reporting requirements of Section 313 of Title I II 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

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

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| Specification | 158778 | Revision date | 05/31/2015 |
| Order number | | Print date | 09/16/2015 |
| | | Page | 10 10 / 12 |

NFPA Ratings

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

16. Other information**Further information**

Revision date 05/31/2015

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

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| | | | |
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| Specification | 158778 | Revision date | 05/31/2015 |
| Order number | | Print date | 09/16/2015 |
| | | Page | 11 10 / 12 |

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 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)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 |
| 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 |

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| | | | |
|---------------|---------------|---------------|-------------------|
| Material no. | | Version | 6.1 / US |
| Specification | 158778 | Revision date | 05/31/2015 |
| Order number | | Print date | 09/16/2015 |
| | | Page | 12 10 / 12 |

| | |
|--------------|--|
| VOC | Volatile organic compounds |
| WHMIS | Workplace Hazardous Materials Information System |
| WHO | World Health Organization |