tart-Butyldimethylchlorosilane, 50% w/w in toluene

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Description: tert-Butyldimethylchlorosilane, 50% w/w in toluene
Cat No.: B21286
Supplier: Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number: Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address: uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

SECTION 2. HAZARD IDENTIFICATION

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Appearance</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Emergency Overview

Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Suspected of damaging fertility or the unborn child. May cause drowsiness and dizziness. Causes severe skin burns and eye damage. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.

Label Elements: Flammable liquids.
Aspiration Toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Reproductive Toxicity
Specific target organ toxicity - (single exposure)
Specific target organ toxicity - (repeated exposure)
Acute aquatic toxicity
Chronic aquatic toxicity
SAFETY DATA SHEET
tert-Butyldimethylchlorosilane, 50% w/w in toluene

Signal Word
Danger

Hazard Statements
H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H336 - May cause drowsiness or dizziness
H314 - Causes severe skin burns and eye damage
H361d - Suspected of damaging the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements
Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P241 - Use explosion-proof electrical/ventilating/lighting equipment
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P281 - Use personal protective equipment as required
Response
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P351 - Do NOT induce vomiting
P363 - Wash contaminated clothing before reuse
Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
Disposal
P501 - Dispose of contents/container to an approved waste disposal plant

Physical and Chemical Hazards
Vapors may cause flash fire or explosion. Highly flammable. Water reactive.
Health Hazards
Aspiration hazard if swallowed - can enter lungs and cause damage. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. Corrosive. Causes skin and eye burns. May cause damage to organs through prolonged or repeated exposure.
Environmental hazards
Toxic to aquatic life with long lasting effects. Is not likely mobile in the environment.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>50</td>
</tr>
<tr>
<td>Silane, chloro(1,1-dimethyl-ethyl)dimethyl</td>
<td>18162-48-6</td>
<td>50</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES
General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation
If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately. Risk of serious damage to the lungs (by aspiration).

Ingestion
Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Self-Protection of the First Aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician
Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water mist may be used to cool closed containers. CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
Water.

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions
Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water.

Refer to protective measures listed in Sections 8 and 13.

### SECTION 7. HANDLING AND STORAGE

**Handling**
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. Do not allow contact with water. Handle under an inert atmosphere.

**Storage**
Flammables area. Corrosives area. Keep away from heat, sparks and flame. Keep away from water or moist air. Store under an inert atmosphere. Keep containers tightly closed in a dry, cool and well-ventilated place.

**Specific Use(s)**
Use in laboratories

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control Parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>China</th>
<th>Taiwan</th>
<th>Hong Kong</th>
<th>The United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TWA: 50 mg/m³</td>
<td>TWA: 100 ppm</td>
<td>TWA: 50 ppm</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>STEL: 100 mg/m³</td>
<td>TWA: 376 mg/m³</td>
<td>STEL: 100 ppm 15 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin</td>
<td>STEL: 188 mg/m³</td>
<td>STEL: 384 mg/m³ 15 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA: 50 ppm 8 hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA: 191 mg/m³ 8 hr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>European Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>TWA: 20 ppm</td>
<td>(Vacated) TWA: 100 ppm</td>
<td>IDLH: 500 ppm</td>
<td>TWA: 50 ppm (8hr)</td>
</tr>
<tr>
<td></td>
<td>(Vacated) TWA: 375 mg/m³</td>
<td>TWA: 100 ppm</td>
<td>TWA: 192 mg/m³ (8hr)</td>
<td>TWA: 192 mg/m³ (8hr)</td>
</tr>
<tr>
<td></td>
<td>Ceiling: 300 ppm</td>
<td>TWA: 375 mg/m³</td>
<td>TWA: 100 ppm</td>
<td>TWA: 100 ppm</td>
</tr>
<tr>
<td></td>
<td>(Vacated) STEL: 150 ppm</td>
<td>TWA: 150 ppm</td>
<td>TWA: 375 mg/m³</td>
<td>STEL: 100 ppm</td>
</tr>
<tr>
<td></td>
<td>(Vacated) STEL: 560 mg/m³</td>
<td>STEL: 560 mg/m³</td>
<td>STEL: 150 ppm</td>
<td>STEL: 384 mg/m³ (15min)</td>
</tr>
<tr>
<td></td>
<td>TWA: 200 ppm</td>
<td>TWA: 200 ppm</td>
<td>STEL: 560 mg/m³</td>
<td>Skin</td>
</tr>
</tbody>
</table>

**Monitoring methods**
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Exposure Controls**

**Engineering Measures**
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment**

<table>
<thead>
<tr>
<th>Eye Protection</th>
<th>Goggles (European standard - EN 166)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Protection</td>
<td>Protective gloves</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrile rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Viton (R)</td>
<td>recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g., sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

**Skin and body protection**
- Long sleeved clothing

**Respiratory Protection**
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use**
- Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
- **Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

**Small scale/Laboratory use**
- Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- **Recommended half mask:** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
- When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**
- Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**
- Prevent product from entering drains. Do not allow material to contaminate ground water system.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
<th>Toluene</th>
<th>2.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition Temperature</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Appearance**
- Liquid

**Physical State**
- Liquid

**Odor**
- No information available

**Odor Threshold**
- No data available

**pH**
- No information available

**Melting Point/Range**
- No data available

**Softening Point**
- No data available

**Boiling Point/Range**
- 110 - 126 °C / 230 - 258.8 °F

**Flash Point**
- 4 °C / 39.2 °F
- **Method** - No information available

**Evaporation Rate**
- No data available

**Flammability (solid,gas)**
- Not applicable

**Explosion Limits**
- No data available

**Vapor Pressure**
- No data available

**Vapor Density**
- No data available

**Specific Gravity / Density**
- 0.866

**Bulk Density**
- Not applicable

**Water Solubility**
- Reacts with water

**Solubility in other solvents**
- No information available

**Partition Coefficient (n-octanol/water)**
- No information available

**Components**
- Toluene

**Autoignition Temperature**
- No data available

**Decomposition Temperature**
- No data available

**Viscosity**
- No data available

**Explosive Properties**
- No information available

**Oxidizing Properties**
- No information available
SECTION 10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Hazardous Reactions
None under normal processing.

Hazardous Polymerization
Hazardous polymerization does not occur.

Conditions to Avoid
Incompatible products. Heat, flames and sparks. Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition.

Materials to avoid

Hazardous Decomposition Products

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity;
Toxicology data for the components

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>&gt; 5000 mg/kg (Rat)</td>
<td>LD50 = 12000 mg/kg (Rabbit)</td>
<td>26700 ppm (Rat) 1 h</td>
</tr>
<tr>
<td>Silane, chloro(1,1-dimethylethyl)dimethyl-</td>
<td>&gt;2000 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;
Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.
Developmental Effects Possible risk of harm to the unborn child.
Teratogenicity Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure; Category 3
Results / Target organs Central nervous system (CNS)

(i) STOT-repeated exposure; Category 2
Target Organs Skin, Respiratory system, Eyes, Gastrointestinal tract (GI), Liver, Kidney, Neuropsychological effects, Ears.
(j) aspiration hazard: Category 1

Symptoms / effects, both acute and delayed

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50-70 mg/L LC50 96 h</td>
<td>EC50: 5.46 - 9.83 mg/L</td>
<td>EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata)</td>
<td>EC50 = 19.7 mg/L 30 min</td>
</tr>
<tr>
<td>Toluene</td>
<td>5-7 mg/L LC50 96 h</td>
<td>48h Static (Daphnia magna)</td>
<td>EC50: = 11.5 mg/L, 48h (Daphnia magna)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15-19 mg/L LC50 96 h</td>
<td>EC50: &gt; 433 mg/L, 96h (Pseudokirchneriella subcapitata)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28 mg/L LC50 96 h</td>
<td>EC50 = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 mg/L LC50 96 h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability

Persistence is unlikely, based on information available.

<table>
<thead>
<tr>
<th>Component</th>
<th>Degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene 108-88-3 (50)</td>
<td>86% (20d)</td>
</tr>
</tbody>
</table>

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants. Water reactive.

Bioaccumulative Potential

Product does not bioaccumulate due to reaction with water

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>2.7</td>
<td>90</td>
</tr>
</tbody>
</table>

Mobility in soil

No information available Is not likely mobile in the environment

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information

Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14. TRANSPORT INFORMATION
Road and Rail Transport

UN-No UN2920
Proper Shipping Name CORROSIVE LIQUID, FLAMMABLE, N.O.S
Technical Shipping Name tert-Butyldimethylsilyl chloride, toluene
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group I

IMDG/IMO

UN-No UN2920
Proper Shipping Name CORROSIVE LIQUID, FLAMMABLE, N.O.S
Technical Shipping Name tert-Butyldimethylsilyl chloride, toluene
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group I

IATA

UN-No UN2920
Proper Shipping Name CORROSIVE LIQUID, FLAMMABLE, N.O.S
Technical Shipping Name tert-Butyldimethylsilyl chloride, toluene
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group I

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories
X = listed. China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Australia (AICS), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268 - 2012</th>
<th>Taiwan Toxic Chemicals Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>203-625-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-3393-6</td>
</tr>
<tr>
<td>Silane, chloro(1,1-dimethylethyl)dimethyl-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>242-042-4</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>97-3-163</td>
<td></td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
Creation Date 29-Jun-2010
Revision Date 27-Jan-2020
tert-Butyldimethylchlorosilane, 50% w/w in toluene

Revision Summary
SDS authoring systems update, replaces ChemGes SDS No. 2,934.

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.
Chemical incident response training.

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

Physical hazards
On basis of test data

Health Hazards
Calculation method

Environmental hazards
Calculation method

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet