SECTION 1. IDENTIFICATION

Product name : HYDROSHINE WS 3003
Product code : 053178AN0

Manufacturer or supplier's details
Company name of supplier : ECKART GmbH
Address : Guentersthal 4
Hartenstein 91235
Telephone : +499152770
Telefax : +499152777008
Emergency telephone : CHEMTREC: 800-424-9300
CHEMTREC: 1-703-527-3387 (International)
GBK Gefahrgut Buero GmbH, Ingelheim, Germany:
From outside US: (001) 352-323-3500
(First call in English, response in your language is possible)
US & Canada (toll free): 1-800-5355-053

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids : Category 2
Eye irritation : Category 2A
Skin sensitization : Category 1
Specific target organ systemic toxicity - single exposure : Category 3 (Central nervous system)

GHS label elements
SAFETY DATA SHEET

HYDROSHINE WS 3003

Version 1.0
Revision Date: 03/21/2018
SDS Number: 102000000627
Date of last issue: -
Date of first issue: 03/21/2018

Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H225 Highly flammable liquid and vapor.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary Statements:

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.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/eye protection/face protection.

Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/
Hazardous ingredients which must be listed on the label:
2-Propanol
propan-2-ol
acetone
1,2-Ethanediamine, N1-[3-(trimethoxysilyl)propyl]-

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>&gt;= 70 - &lt; 90</td>
</tr>
<tr>
<td>propan-2-ol</td>
<td>67-63-0</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>acetone</td>
<td>67-64-1</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>Silica</td>
<td>7631-86-9</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>1,2-Ethanediamine, N1-[3-(trimethoxysilyl)propyl]-</td>
<td>1760-24-3</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice : Take the victim into fresh air. Do not leave the victim unattended. Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact:
Wash off immediately with soap and plenty of water.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact:
Immediately flush eye(s) with plenty of water.
Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed:
Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed:
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause drowsiness or dizziness.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:
Dry sand
ABC powder
Foam

Unsuitable extinguishing media:
High volume water jet

Specific hazards during fire fighting:
Do not allow run-off from fire fighting to enter drains or water courses.

Further information:
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.

Special protective equipment for fire-fighters:
Wear self-contained breathing apparatus for firefighting if necessary.
SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Evacuate personnel to safe areas.
- Use personal protective equipment.
- Ensure adequate ventilation.
- Remove all sources of ignition.
- Evacuate personnel to safe areas.
- Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up:
- Use mechanical handling equipment.
- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
- 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).
- Do not flush with water.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion:
- Do not spray on a naked flame or any incandescent material.
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
- Use only explosion-proof equipment.
- Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling:
- Avoid formation of aerosol.
- Do not breathe vapors/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.
- Take precautionary measures against static discharges.
- Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage:
- Earthing of containers and apparatuses is essential.
- Reaction with water liberates extremely flammable gas (hydrogen)
- Take measures to prevent the build up of electrostatic charge.
- Use explosion-proof equipment.
- Store in original container.
- Keep containers tightly closed in a cool, well-ventilated place.
- Keep away from sources of ignition - No smoking.
- Keep container closed when not in use.

No smoking.
- Keep container tightly closed in a dry and well-ventilated place.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Observe label precautions.
- Electrical installations / working materials must comply with the technological safety standards.

Technical measures/Precautions:
- Protect from humidity and water.

Materials to avoid:
- Do not store near acids.
- Do not store together with oxidizing and self-igniting products.
- Never allow product to get in contact with water during storage.
- Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

Further information on storage stability:
- No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Ingredients with workplace control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredients</td>
</tr>
<tr>
<td>2-Propanol</td>
</tr>
<tr>
<td>Substance</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>STEL</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>ST</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>STEL</td>
</tr>
<tr>
<td>Propan-2-ol</td>
</tr>
<tr>
<td>STEL</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>ST</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>TWA</td>
</tr>
<tr>
<td>STEL</td>
</tr>
<tr>
<td>Aluminum</td>
</tr>
<tr>
<td>TWA (Respirable fraction)</td>
</tr>
<tr>
<td>TWA (total dust)</td>
</tr>
<tr>
<td>TWA (total)</td>
</tr>
<tr>
<td>TWA (respirable fraction)</td>
</tr>
<tr>
<td>TWA (respirable fraction)</td>
</tr>
<tr>
<td>TWA (Respirable fraction)</td>
</tr>
<tr>
<td>TWA (Total)</td>
</tr>
<tr>
<td>TWA (Total)</td>
</tr>
<tr>
<td>Substance</td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Acetone</td>
</tr>
<tr>
<td>Silica</td>
</tr>
</tbody>
</table>

**TWA (Respirable fraction):**
- Al: 5 mg/m³
- OSHA P0

**TWA (Total dust):**
- Al: 15 mg/m³
- OSHA Z-1

**TWA (Respirable fraction):**
- Al: 5 mg/m³
- OSHA Z-1

**TWA (Total dust):**
- Al: 15 mg/m³
- OSHA P0

**TWA (Respirable dust fraction):**
- Al: 5 mg/m³
- OSHA P0

**TWA (Welding fumes):**
- Al: 5 mg/m³
- NIOSH REL

**TWA (Pyro powders):**
- Al: 5 mg/m³
- NIOSH REL

**TWA (Respirable fraction):**
- Al: 1 mg/m³
- ACGIH

**TWA (Fumes):**
- Al: 5 mg/m³
- OSHA P0

**Acetone:**
- 67-64-1
- TWA: 500 ppm
- ACGIH

**STE (Respirable fraction):**
- Al: 750 ppm
- ACGIH

**TWA (Respirable fraction):**
- Al: 250 ppm
- 590 mg/m³
- OSHA Z-1

**TWA (Respirable fraction):**
- Al: 1,000 ppm
- 2,400 mg/m³
- OSHA Z-1

**TWA (Respirable fraction):**
- Al: 750 ppm
- 1,800 mg/m³
- OSHA P0

**STE (Respirable fraction):**
- Al: 1,000 ppm
- 2,400 mg/m³
- OSHA P0

**Silica:**
- 7631-86-9
- TWA: 6 mg/m³
- NIOSH REL

**TWA (Dust):**
- 20 Million particles per cubic foot
- OSHA Z-3

**TWA (Dust):**
- 80 mg/m³ / %SiO2
- OSHA Z-3

**TWA (Dust):**
- 20 Million particles per cubic
- OSHA Z-3
Hazardous components without workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Ethanediamine, N1-[3-(trimethoxysilyl)propyl]-</td>
<td>1760-24-3</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift at end of workweek</td>
<td>40 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>acetone</td>
<td>67-64-1</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>50 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift at end of workweek</td>
<td>40 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection: Use suitable breathing protection if workplace concentration requires.

In the case of vapor formation use a respirator with an approved filter.

Hand protection Material: Solvent-resistant gloves (butyl-rubber)
Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The exact break through time can be obtained from the protective glove producer and this has to be observed. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Recommended preventive skin protection Skin should be washed after contact. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Goggles
               Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
                  When using do not smoke.
                  Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
Color : silver
Odor : characteristic
Odor Threshold : No data available
pH : No data available
Melting point/freezing point : No data available
Boiling point/boiling range : 82 °C
Flash point : 13 °C
Evaporation rate : No data available
Flammability (solid, gas) : No data available
Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit / Lower flammability limit : No data available
SECTION 10. STABILITY AND REACTIVITY

Reactivity: No decomposition if stored and applied as directed.

Chemical stability: No decomposition if stored and applied as directed.

Possibility of hazardous reactions: Contact with acids and alkalis may release hydrogen.
Stable under recommended storage conditions.
Vapors may form explosive mixture with air.

Conditions to avoid: Do not allow evaporation to dryness.
Heat, flames and sparks.

Incompatible materials: Acids
Bases
Oxidizing agents

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Not classified based on available information.

Ingredients:

2-Propanol:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

Silica:
Acute oral toxicity: LD50 (Rat): 5,000 mg/kg
Acute inhalation toxicity: (Rat): 0.139 mg/l
Exposure time: 4 h

Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

1,2-Ethanediamine, N1-[3-(trimethoxysilyl)propyl]-:
Acute oral toxicity: LD50 (Rat): ca. 2,400 mg/kg

Acute inhalation toxicity: LC50: 1.49 - 2.44 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Serious eye damage/eye irritation
Causes serious eye irritation.

Respiratory or skin sensitization

Skin sensitization
May cause an allergic skin reaction.

Respiratory sensitization
Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
Reproductive toxicity
Not classified based on available information.

**STOT-single exposure**
May cause drowsiness or dizziness.

**STOT-repeated exposure**
Not classified based on available information.

**Aspiration toxicity**
Not classified based on available information.

**Further information**

**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ingredients:**

**Silica:**
Toxicity to daphnia and other aquatic invertebrates: (Daphnia): 7,600 mg/l

Toxicity to algae: (Chlorella pyrenoidosa): 440 mg/l

**Persistence and degradability**
No data available

**Bioaccumulative potential**
No data available

**Other adverse effects**
No data available

**SECTION 13. DISPOSAL CONSIDERATIONS**

**Disposal methods**

**Waste from residues**: Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
In accordance with local and national regulations.

**Contaminated packaging**: Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.
In accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No. : UN 1263
Proper shipping name : Paint classified according to 3.3.3.1 IATA-DGR
Class : 3
Packing group : III
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355

IMDG-Code
UN number : UN 1263
Proper shipping name : PAINT CLASSIFIED ACCORDING TO 2.3.2.2 IMDG-CODE
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
UN/ID/NA number : UN 1263
Proper shipping name : Paint
Class : 3
Packing group : III
Labels : FLAMMABLE LIQUID
ERG Code : 128
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ</th>
</tr>
</thead>
</table>

14 / 18
SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards: Flammable (gases, aerosols, liquids, or solids)
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Reporting Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>&gt;= 70 - &lt; 90 %</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>&gt;= 10 - &lt; 20 %</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>&gt;= 5 - &lt; 10 %</td>
</tr>
</tbody>
</table>

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Reporting Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>75 %</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>10 %</td>
</tr>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>5 %</td>
</tr>
</tbody>
</table>

Clean Water Act
The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Reporting Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>64-19-7</td>
<td>0.4783 %</td>
</tr>
</tbody>
</table>

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307.

**US State Regulations**

**Massachusetts Right To Know**
- 2-Propanol: 67-63-0
- Propan-2-ol: 67-63-0
- Aluminum: 7429-90-5
- Acetone: 67-64-1
- Silica: 7631-86-9

**Pennsylvania Right To Know**
- 2-Propanol: 67-63-0
- Propan-2-ol: 67-63-0
- Aluminum: 7429-90-5
- Acetone: 67-64-1
- Silica: 7631-86-9
- Acetic acid: 64-19-7

**California Prop. 65**

WARNING: This product can expose you to chemicals including lead and cadmium, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**California List of Hazardous Substances**
- 2-Propanol: 67-63-0
- Aluminum: 7429-90-5
- Silica: 7631-86-9

**California Permissible Exposure Limits for Chemical Contaminants**
- 2-Propanol: 67-63-0
Aluminum 7429-90-5
Silica 7631-86-9

The ingredients of this product are reported in the following inventories:
DSL : All components of this product are on the Canadian DSL
TSCA : On TSCA Inventory

TSCA list
No substances are subject to a Significant New Use Rule.
No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA P0 / TWA : 8-hour time weighted average
OSHA P0 / STEL : Short-term exposure limit
OSHA Z-1 / TWA : 8-hour time weighted average
OSHA Z-3 / TWA : 8-hour time weighted average
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely...
Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; 
ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% 
growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - 
Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - Internatio
nal Agency for Research on Cancer; IATA - International Air Transport Association; IBC - Internatio
nal Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - 
Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - 
Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - 
International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - Inte
rnational Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - 
Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population 
(Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; 
MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National 
Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No 
Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National 
Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for 
Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution 
Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of 
Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - 
Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the 
European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and 
Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition 
Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; 
TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); 
UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous 
Goods; vPvB - Very Persistent and Very Bioaccumulative

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The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, 
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