SAFETY DATA SHEET
ULTRASTAR UV FP-8220 Silver

SECTION 1. IDENTIFICATION

Product name : ULTRASTAR UV FP-8220 Silver
Product code : 052466U30

Manufacturer or supplier's details
Company name of supplier : ECKART GmbH
Address : Guentersthal 4
Hartenstein 91235
Telephone : +4991527770
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
Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitization : Category 1

GHS label elements
Hazard pictograms :

Signal Word : Warning
Hazard Statements : H315 Causes skin irritation.
Precautionary Statements:

**Prevention:**
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/ eye protection/ face protection.

**Response:**
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- 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/ attention.
- P362 Take off contaminated clothing and wash before reuse.

**Disposal:**
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous ingredients which must be listed on the label:

- Poly(oxy-1,2-ethanediyl), .alpha.,.alpha.,.alpha.'-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)
- Phenol, 4,4'-(1-methylene)bis-, polymer with 2-(chloromethyl)oxirane, 2-propenoate
- Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.,.alpha.'-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propen-1-yl)oxy]-\]
- Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propen-1-yl)oxy]-

Other hazards
None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Hazardous ingredients
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<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propenoic acid, 1,1’-(1,6-hexanediyl) ester</td>
<td>13048-33-4</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-hydro- .omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)</td>
<td>28961-43-5</td>
<td>&gt;= 20 - &lt; 30</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 2-(chloromethyl)oxirane, 2-propenoate</td>
<td>55818-57-0</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>1-Propanone, 2-hydroxy-2-methyl-1-phenyl- polyester acrylate oligomer</td>
<td>7473-98-5</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.,.alpha.'-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propen-1-yl)oxy]-]</td>
<td>52408-84-1</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
<tr>
<td>Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propen-1-yl)oxy]-]</td>
<td>84170-74-1</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
<tr>
<td>2-Propenoic acid, 2-ethylhexyl ester</td>
<td>103-11-7</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact: If skin irritation persists, call a physician. 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. 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.
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If symptoms persist, call a physician.

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

SECTION 5. FIRE-FIGHTING MEASURES

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.

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:
- Use personal protective equipment.

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:
- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
- Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion:
- Normal measures for preventive fire protection.

Advice on safe handling:
- 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. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage: 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. Electrical installations / working materials must comply with the technological safety standards.

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Propenoic acid, 1,1'-(1,6-hexanediyl) ester</td>
<td>13048-33-4</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>US WEEL</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>TWA (total dust)</td>
<td>50 Million particles per cubic foot</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable)</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total dust)</td>
<td>15 mg/m³</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total)</td>
<td>10 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable fraction)</td>
<td>5 mg/m³</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable fraction)</td>
<td>15 Million particles per cubic foot</td>
<td>OSHA Z-3</td>
</tr>
</tbody>
</table>
TWA (Respirable fraction) | 1 mg/m³ | ACGIH
---|---|---
TWA | 5 mg/m³ (Aluminum) | NIOSH REL
TWA (Total) | 15 mg/m³ (Aluminum) | OSHA P0
TWA (Respirable fraction) | 5 mg/m³ (Aluminum) | OSHA P0
TWA (total dust) | 15 mg/m³ (Aluminum) | OSHA Z-1
TWA (respirable fraction) | 5 mg/m³ (Aluminum) | OSHA Z-1
TWA (Total dust) | 15 mg/m³ (Aluminum) | OSHA P0
TWA (respirable dust fraction) | 5 mg/m³ (Aluminum) | OSHA P0
TWA (welding fumes) | 5 mg/m³ (Aluminum) | NIOSH REL
TWA (pyro powders) | 5 mg/m³ (Aluminum) | NIOSH REL
TWA (Respirable fraction) | 1 mg/m³ (Aluminum) | ACGIH
TWA (Fumes) | 5 mg/m³ | OSHA P0

Hazardous components without workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)</td>
<td>28961-43-5</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methyllethylidene)bis-, polymer with 2-(chloromethyl)oxirane, 2-propenoate</td>
<td>55818-57-0</td>
</tr>
<tr>
<td>1-Propanone, 2-hydroxy-2-methyl-1-phenyl-</td>
<td>7473-98-5</td>
</tr>
</tbody>
</table>
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polyester acrylate oligomer 223463-47-6

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly[oxy(methyl-1,2-ethanediyl)], .alpha,.alpha,',,alpha.',,alpha.'-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propen-1-yl)oxy]-]</td>
<td>52408-84-1</td>
</tr>
<tr>
<td>Poly[oxy(methyl-1,2-ethanediyl)],.alpha,.alpha.'-(2,2-dimethyl-1,3-propanediyl)bis[.omega.-[(1-oxo-2-propen-1-yl)oxy]-]</td>
<td>84170-74-1</td>
</tr>
<tr>
<td>2-Propenoic acid, 2-ethylhexyl ester</td>
<td>103-11-7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal protective equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand protection</td>
</tr>
<tr>
<td>Remarks: The suitability for a specific workplace should be discussed with the producers of the protective gloves.</td>
</tr>
<tr>
<td>Eye protection</td>
</tr>
<tr>
<td>Wear face-shield and protective suit for abnormal processing problems.</td>
</tr>
<tr>
<td>Skin and body protection</td>
</tr>
<tr>
<td>Choose body protection according to the amount and concentration of the dangerous substance at the work place.</td>
</tr>
<tr>
<td>Hygiene measures</td>
</tr>
<tr>
<td>When using do not eat or drink.</td>
</tr>
<tr>
<td>When using do not smoke.</td>
</tr>
<tr>
<td>Wash hands before breaks and at the end of workday.</td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>101 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>101 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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: No decomposition if stored and applied as directed.
Conditions to avoid: No data available

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Not classified based on available information.

Components:

2-Propenoic acid, 1,1'-(1,6-hexanediyl) ester:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: (Rat): 0.14 mg/l
Exposure time: 7 h

Acute dermal toxicity: LD50 (Rabbit): 3,650 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation
Causes skin irritation.
Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
Result: Skin irritation
Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
Remarks: Vapors may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization
Skin sensitization
May cause an allergic skin reaction.

Respiratory sensitization
Not classified based on available information.

Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
Result: May cause sensitization by skin contact.
Remarks: Causes sensitization.
May cause sensitization of susceptible persons by skin contact.

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
Not classified based on available information.

STOT-repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro.-omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro.-omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
Toxicity to daphnia and other aquatic invertebrates: (Daphnia): 10,232.73 mg/l

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Other adverse effects
No data available

Components:
Poly(oxy-1,2-ethanediyl), .alpha.-hydro.-omega.-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1):
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
- Waste from residues: The product should not be allowed to enter drains, water courses or the soil. 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. In accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

Domestic regulation
- 49 CFR: Not classified as dangerous in the meaning of transport regulations.

International Regulations
- Remarks: Not classified as dangerous in the meaning of transport regulations.

ADR: Not classified as dangerous in the meaning of transport regulations.

IATA-DGR: Not classified as dangerous in the meaning of transport regulations.

IMDG-Code: Not classified as dangerous in the meaning of transport regulations.

Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.
SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid ethyl ester</td>
<td>141-78-6</td>
<td>5000</td>
</tr>
</tbody>
</table>

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:
- Skin corrosion or irritation
- Serious eye damage or eye irritation
- Respiratory or skin sensitization

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-No.</th>
<th>Reporting Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>7429-90-5</td>
<td>$\geq 1 \text{ - } &lt; 5%$</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).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

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-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene, methyl-</td>
<td>108-88-3</td>
<td>0.0112 %</td>
</tr>
</tbody>
</table>

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene, methyl-</td>
<td>108-88-3</td>
<td>0.0112 %</td>
</tr>
</tbody>
</table>

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-Propenoic acid, 1,1'-(1,6-hexanediyl) ester 13048-33-4
Poly(oxy-1,2-ethanediyl), \( \alpha \)-hydro-\( \omega \)-[\( 1 \)-oxo-2-propen-1-\( \alpha \)]oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) 28961-43-5
1-Propanone, 2-hydroxy-2-methyl-1-phenyl- 7473-98-5
Aluminum 7429-90-5

Pennsylvania Right To Know

2-Propenoic acid, 1,1'-(1,6-hexanediyl) ester 13048-33-4
Poly(oxy-1,2-ethanediyl), \( \alpha \)-hydro-\( \omega \)-[\( 1 \)-oxo-2-propen-1-\( \alpha \)]oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) 28961-43-5
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2-(chloromethyl)oxirane, 2-propenoate 55818-57-0
1-Propanone, 2-hydroxy-2-methyl-1-phenyl-polyester acrylate oligomer 223463-47-6
Aluminum 7429-90-5
Acetic acid ethyl ester 141-78-6
Benzene, methyl- 108-88-3

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.

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

California List of Hazardous Substances

Aluminum 7429-90-5

California Permissible Exposure Limits for Chemical Contaminants

Aluminum 7429-90-5
The ingredients of this product are reported in the following inventories:

**DSL**: This product contains one or several components that are not on the Canadian DSL nor NDSL.

**TSCA**: Not 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.

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**SECTION 16. OTHER INFORMATION**

**Full text of other abbreviations**

- **ACGIH**: USA. ACGIH Threshold Limit Values (TLV)
- **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
- **US WEEL**: USA. Workplace Environmental Exposure Levels (WEEL)
- **ACGIH / TWA**: 8-hour, time-weighted average
- **NIOSH REL / TWA**: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
- **OSHA P0 / TWA**: 8-hour time weighted average
- **OSHA Z-1 / TWA**: 8-hour time weighted average
- **OSHA Z-3 / TWA**: 8-hour time weighted average
- **US WEEL / TWA**: 8-hr TWA

**Abbreviations**

- 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 - International Agency for Research on Cancer
- IATA - International Air Transport Association
- IBC - International 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

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International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International 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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