

# SAFETY DATA SHEET

## 1. Identification

|   |  |              |
|---|--|--------------|
| <b>Product identifier</b>                                     | <b>DEVCON® Titanium Putty Resin</b>                      |              |
| <b>Other means of identification</b>                          |  |              |
| <b>SKU#</b>   | 0113   |              |
| <b>Recommended use</b>  | Not available.   |              |
| <b>Recommended restrictions</b>                               | None known.  |              |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |  |              |
| <b>Manufacturer</b>   |  |              |
| <b>Company name</b>   | ITW Performance Polymers                                 |              |
| <b>Address</b>  | 30 Endicott Street<br>Danvers, MA 01923<br>United States |              |
| <b>Telephone</b>  | Customer Service   | 978-777-1100 |
| <b>Website</b>  | www.itwperformancepolymers.com                           |              |
| <b>E-mail</b>   | Not available.   |              |
| <b>Contact person</b>   | EHS Department   |              |
| <b>Emergency phone number</b>                                 | Chemtrec   | 800-424-9300 |
|   | International  | 703-527-3887 |

## 2. Hazard(s) identification

|                              |  |                             |
|------------------------------|--|-----------------------------|
| <b>Physical hazards</b>      | Not classified.                                    |                             |
| <b>Health hazards</b>        | Skin corrosion/irritation                          | Category 2                  |
|                              | Serious eye damage/eye irritation                  | Category 2                  |
|                              | Sensitization, skin                                | Category 1                  |
|                              | Specific target organ toxicity, single exposure    | Category 3 narcotic effects |
| <b>Environmental hazards</b> | Hazardous to the aquatic environment, acute hazard | Category 2                  |
| <b>OSHA defined hazards</b>  | Not classified.                                    |                             |
| <b>Label elements</b>        |  |                             |



|  |  |  |
|--|--|--|
| <b>Signal word</b>                               | Warning  |  |
| <b>Hazard statement</b>                          | Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness or dizziness. Toxic to aquatic life.  |  |
| <b>Precautionary statement</b>                   |  |  |
| <b>Prevention</b>                                | Avoid breathing mist/vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves.   |  |
| <b>Response</b>                                  | If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. |  |
| <b>Storage</b>                                   | Store in a well-ventilated place. Keep container tightly closed. Store locked up.  |  |
| <b>Disposal</b>                                  | Dispose of contents/container in accordance with local/regional/national/international regulations.  |  |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.  |  |
| <b>Supplemental information</b>                  | None.  |  |

### 3. Composition/information on ingredients

#### Mixtures

| Chemical name                                  | Common name and synonyms | CAS number | %       |
|--|--------------------------|------------|---------|
| Ferrosilicon, [with >= 30% But <= 70% Silicon] |                          | 8049-17-0  | 40 - 70 |
| Other components below reportable levels       |                          |            | 7 - 13  |

### 4. First-aid measures

|   |  |
|---|--|
| <b>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.  |
| <b>Skin contact</b>   | Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.  |
| <b>Eye contact</b>  | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.  |
| <b>Ingestion</b>  | Rinse mouth. Get medical attention if symptoms occur.  |
| <b>Most important symptoms/effects, acute and delayed</b>                     | May cause drowsiness or dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.   |
| <b>General information</b>  | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.  |

### 5. Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).                                   |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire fighting equipment/instructions</b>                          | Move containers from fire area if you can do so without risk.                                 |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>  | No unusual fire or explosion hazards noted.   |

### 6. Accidental release measures

|  |   |
|--|---|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
| <b>Methods and materials for containment and cleaning up</b>               | Prevent product from entering drains.<br><br>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.<br><br>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.                          |
| <b>Environmental precautions</b>   | Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.  |

## 7. Handling and storage

|   |  |
|---|--|
| <b>Precautions for safe handling</b>                                | Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. |
| <b>Conditions for safe storage, including any incompatibilities</b> | Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).  |

## 8. Exposure controls/personal protection

### Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

|  |  |
|--|--|
| <b>Biological limit values</b>   | No biological exposure limits noted for the ingredient(s).   |
| <b>Appropriate engineering controls</b>                                      | Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower. |
| <b>Individual protection measures, such as personal protective equipment</b> |  |
| <b>Eye/face protection</b>   | Chemical respirator with organic vapor cartridge and full facepiece.   |
| <b>Skin protection</b>   |  |
| <b>Hand protection</b>   | Wear appropriate chemical resistant gloves.  |
| <b>Other</b>   | Wear appropriate chemical resistant clothing.  |
| <b>Respiratory protection</b>  | Chemical respirator with organic vapor cartridge and full facepiece.   |
| <b>Thermal hazards</b>   | Wear appropriate thermal protective clothing, when necessary.  |
| <b>General hygiene considerations</b>  | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.   |

## 9. Physical and chemical properties

|   |  |
|---|--|
| <b>Appearance</b>                                   | Viscous. Liquid.                                       |
| <b>Physical state</b>                               | Liquid.  |
| <b>Form</b>   | Viscous. Liquid.                                       |
| <b>Color</b>  | Not available.   |
| <b>Odor</b>   | Slight.  |
| <b>Odor threshold</b>                               | Not available.   |
| <b>pH</b>   | Not available.   |
| <b>Melting point/freezing point</b>                 | Not available.   |
| <b>Initial boiling point and boiling range</b>      | 608 °F (320 °C) estimated                              |
| <b>Flash point</b>                                  | >399.9 °F (>204.4 °C)<br>265.0 °F (129.4 °C) estimated |
| <b>Evaporation rate</b>                             | Not available.   |
| <b>Flammability (solid, gas)</b>                    | Not applicable.  |
| <b>Upper/lower flammability or explosive limits</b> |  |
| <b>Explosive limit - lower (%)</b>                  | Not available.   |
| <b>Explosive limit - upper (%)</b>                  | Not available.   |
| <b>Vapor pressure</b>                               | Not available.   |
| <b>Vapor density</b>                                | Not available.   |
| <b>Relative density</b>                             | Not available.   |
| <b>Solubility(ies)</b>                              |  |
| <b>Solubility (water)</b>                           | Not available.   |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.   |

|                                  |                                  |
|----------------------------------|----------------------------------|
| <b>Auto-ignition temperature</b> | Not available.                   |
| <b>Decomposition temperature</b> | Not available.                   |
| <b>Viscosity</b>                 | Not available.                   |
| <b>Other information</b>         |                                  |
| <b>Density</b>                   | 1.36 g/cm <sup>3</sup> estimated |
| <b>Explosive properties</b>      | Not explosive.                   |
| <b>Flammability class</b>        | Combustible III B estimated      |
| <b>Oxidizing properties</b>      | Not oxidizing.                   |
| <b>Specific gravity</b>          | 1.36 estimated                   |
| <b>VOC</b>                       | 0 g/l                            |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.   |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.                                   |
| <b>Conditions to avoid</b>                | Contact with incompatible materials.  |
| <b>Incompatible materials</b>             | Strong oxidizing agents.  |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | May cause drowsiness or dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful. |
| <b>Skin contact</b> | Causes skin irritation. May cause an allergic skin reaction.  |
| <b>Eye contact</b>  | Causes serious eye irritation.  |
| <b>Ingestion</b>    | Expected to be a low ingestion hazard.  |

**Symptoms related to the physical, chemical and toxicological characteristics** May cause drowsiness or dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

### Information on toxicological effects

|  |  |
|--|--|
| <b>Acute toxicity</b>                    | Not known.   |
| <b>Skin corrosion/irritation</b>         | Causes skin irritation.  |
| <b>Serious eye damage/eye irritation</b> | Causes serious eye irritation.   |
| <b>Respiratory or skin sensitization</b> |  |
| <b>Respiratory sensitization</b>         | Not a respiratory sensitizer.  |
| <b>Skin sensitization</b>                | May cause an allergic skin reaction.   |
| <b>Germ cell mutagenicity</b>            | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| <b>Carcinogenicity</b>                   | Not classifiable as to carcinogenicity to humans.  |

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

#### US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

|   |  |
|---|--|
| <b>Reproductive toxicity</b>                              | This product is not expected to cause reproductive or developmental effects. |
| <b>Specific target organ toxicity - single exposure</b>   | May cause drowsiness or dizziness.   |
| <b>Specific target organ toxicity - repeated exposure</b> | Not classified.  |

|                          |                                      |
|--------------------------|--------------------------------------|
| <b>Aspiration hazard</b> | Not an aspiration hazard.            |
| <b>Chronic effects</b>   | Prolonged inhalation may be harmful. |

## 12. Ecological information

|                                      |   |
|--------------------------------------|---|
| <b>Ecotoxicity</b>                   | Toxic to aquatic life.  |
| <b>Persistence and degradability</b> | No data is available on the degradability of any ingredients in the mixture.  |
| <b>Bioaccumulative potential</b>     |   |
| <b>Mobility in soil</b>              | No data available.  |
| <b>Other adverse effects</b>         | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. |

## 13. Disposal considerations

|  |  |
|--|--|
| <b>Disposal instructions</b>                 | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.   |
| <b>Hazardous waste code</b>                  | The waste code should be assigned in discussion between the user, the producer and the waste disposal company.   |
| <b>Waste from residues / unused products</b> | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).   |
| <b>Contaminated packaging</b>                | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.   |

## 14. Transport information

### DOT

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### Toxic Substances Control Act (TSCA)

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### SARA 302 Extremely hazardous substance

Not listed.

**SARA 311/312 Hazardous chemical** Yes

#### Classified hazard categories

Skin corrosion or irritation  
 Serious eye damage or eye irritation  
 Respiratory or skin sensitization  
 Specific target organ toxicity (single or repeated exposure)

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.**US state regulations****California Proposition 65****WARNING:** This product can expose you to chemicals including Benzene, which is 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](http://www.P65Warnings.ca.gov).**International Inventories**

| Country(s) or region        | Inventory name   | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia                   | Australian Inventory of Industrial Chemicals (AICIS)                   | No                     |
| Canada                      | Domestic Substances List (DSL)   | No                     |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | No                     |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | No                     |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | No                     |
| Korea                       | Existing Chemicals List (ECL)  | No                     |
| New Zealand                 | New Zealand Inventory  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| Taiwan                      | Taiwan Chemical Substance Inventory (TCSI)                             | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | Yes                    |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

|                      |   |
|----------------------|---|
| <b>Issue date</b>    | 05-29-2019  |
| <b>Revision date</b> | 07-28-2023  |
| <b>Version #</b>     | 06  |
| <b>HMIS® ratings</b> | Health: 2<br>Flammability: 1<br>Physical hazard: 0  |
| <b>NFPA ratings</b>  | Health: 2<br>Flammability: 1<br>Instability: 0  |
| <b>Disclaimer</b>    | ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. 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 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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release. |

# SAFETY DATA SHEET

## 1. Identification

|   |  |              |
|---|--|--------------|
| <b>Product identifier</b>                                     | <b>DEVCON® Titanium Putty Hardener</b>                   |              |
| <b>Other means of identification</b>                          |  |              |
| <b>SKU#</b>   | 5318N  |              |
| <b>Recommended use</b>  | Not available.   |              |
| <b>Recommended restrictions</b>                               | None known.  |              |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |  |              |
| <b>Manufacturer</b>   |  |              |
| <b>Company name</b>   | ITW Performance Polymers                                 |              |
| <b>Address</b>  | 30 Endicott Street<br>Danvers, MA 01923<br>United States |              |
| <b>Telephone</b>  | Customer Service   | 978-777-1100 |
| <b>Website</b>  | www.itwperformancepolymers.com                           |              |
| <b>E-mail</b>   | Not available.   |              |
| <b>Contact person</b>   | EHS Department   |              |
| <b>Emergency phone number</b>                                 | Chemtrec   | 800-424-9300 |
|   | International  | 703-527-3887 |

## 2. Hazard(s) identification

|                              |   |                             |
|------------------------------|---|-----------------------------|
| <b>Physical hazards</b>      | Not classified.                                 |                             |
| <b>Health hazards</b>        | Acute toxicity, dermal                          | Category 4                  |
|                              | Skin corrosion/irritation                       | Category 1A                 |
|                              | Serious eye damage/eye irritation               | Category 1                  |
|                              | Sensitization, skin                             | Category 1                  |
|                              | Specific target organ toxicity, single exposure | Category 3 narcotic effects |
| <b>Environmental hazards</b> | Not classified.                                 |                             |
| <b>OSHA defined hazards</b>  | Not classified.                                 |                             |

### Label elements



|  |  |  |
|--|--|--|
| <b>Signal word</b>                               | Danger   |  |
| <b>Hazard statement</b>                          | Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause drowsiness or dizziness.  |  |
| <b>Precautionary statement</b>                   |  |  |
| <b>Prevention</b>                                | Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.   |  |
| <b>Response</b>                                  | If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If skin irritation or rash occurs: Get medical advice/attention. |  |
| <b>Storage</b>                                   | Store in a well-ventilated place. Keep container tightly closed. Store locked up.  |  |
| <b>Disposal</b>                                  | Dispose of contents/container in accordance with local/regional/national/international regulations.  |  |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.  |  |
| <b>Supplemental information</b>                  | None.  |  |

### 3. Composition/information on ingredients

#### Mixtures

| Chemical name   | Common name and synonyms  | CAS number | %        |
|---|---|------------|----------|
| Ferrosilicon, [with >= 30% But <= 70% Silicon]                                  |   | 8049-17-0  | 10 - 30  |
| Formaldehyde, Oligomeric Reaction Products With Phenol And Triethylenetetramine | Formaldehyde, oligomeric reaction products with phenol and triethylenetetramine | 32610-77-8 | 10 - 30  |
| Glass Oxide   |   | 65997-17-3 | 5 - 10   |
| Phenol  |   | 108-95-2   | 5 - 10   |
| TRIETHYLENETETRAMINE  | TETA  | 112-24-3   | 5 - 10   |
| 1h-imidazole, 2-ethyl-4-methyl-   |   | 931-36-2   | 2.5 - 10 |
| Titanium Dioxide  | TITANIUM DIOXIDE  | 13463-67-7 | 1 - 5    |
| Methylimidazole, 4-   |   | 822-36-6   | 0.1 - 1  |
| Other components below reportable levels  |   |            | 10 - 20  |

### 4. First-aid measures

|   |  |
|---|--|
| <b>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.  |
| <b>Skin contact</b>   | Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.   |
| <b>Eye contact</b>  | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.  |
| <b>Ingestion</b>  | Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.  |
| <b>Most important symptoms/effects, acute and delayed</b>                     | May cause drowsiness or dizziness. Headache. Nausea, vomiting. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.   |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed. |
| <b>General information</b>  | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.   |

### 5. Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).                      |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire fighting equipment/instructions</b>                          | Use water spray to cool unopened containers.  |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>  | No unusual fire or explosion hazards noted.   |

### 6. Accidental release measures

|  |  |
|--|--|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
|--|--|



**Methods and materials for containment and cleaning up**

Large Spills: Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

Small Spills: Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage****Precautions for safe handling**

Do not get in eyes, on skin, or on clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection****Occupational exposure limits**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

**US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)**

| Components                        | Type | Value                | Form        |
|-----------------------------------|------|----------------------|-------------|
| Phenol (CAS 108-95-2)             | PEL  | 19 mg/m <sup>3</sup> |             |
|                                   |      | 5 ppm                |             |
| Titanium Dioxide (CAS 13463-67-7) | PEL  | 15 mg/m <sup>3</sup> | Total dust. |

**US. OSHA Table Z-3 Permissible Exposure Limits (PEL) for Mineral Dusts (29 CFR 1910.1000)**

| Components                        | Type | Value                | Form                 |
|-----------------------------------|------|----------------------|----------------------|
| Titanium Dioxide (CAS 13463-67-7) | TWA  | 5 mg/m <sup>3</sup>  | Respirable fraction. |
|                                   |      | 15 mg/m <sup>3</sup> | Total dust.          |
|                                   |      | 50 mppcf             | Total dust.          |
|                                   |      | 15 mppcf             | Respirable fraction. |

**US. ACGIH Threshold Limit Values (TLV)**

| Components                        | Type | Value                 | Form                           |
|-----------------------------------|------|-----------------------|--------------------------------|
| Phenol (CAS 108-95-2)             | TWA  | 5 ppm                 |                                |
| Titanium Dioxide (CAS 13463-67-7) | TWA  | 2.5 mg/m <sup>3</sup> | Respirable finescale particles |
|                                   |      | 0.2 mg/m <sup>3</sup> | Respirable nanoscale particles |

**NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended**

| Components                        | Type | Value                  |
|-----------------------------------|------|------------------------|
| Phenol (CAS 108-95-2)             | IDLH | 1.8 %                  |
|                                   |      | 250 ppm                |
| Titanium Dioxide (CAS 13463-67-7) | IDLH | 5000 mg/m <sup>3</sup> |

**US. NIOSH: Pocket Guide to Chemical Hazards Recommended Exposure Limits (REL)**

| Components                   | Type    | Value                | Form               |
|------------------------------|---------|----------------------|--------------------|
| Glass Oxide (CAS 65997-17-3) | TWA     | 5 mg/m <sup>3</sup>  | fibers, total dust |
| Phenol (CAS 108-95-2)        | Ceiling | 60 mg/m <sup>3</sup> |                    |
|                              |         | 15.6 ppm             |                    |
|                              |         | 19 mg/m <sup>3</sup> |                    |
|                              | TWA     | 5 ppm                |                    |

**US. OARS. Workplace Environmental Exposure Level (WEEL) Guide**

| Components                              | Type | Value                            |
|---|------|----------------------------------|
| TRIETHYLENETETRAMIN<br>E (CAS 112-24-3) | TWA  | 6 mg/m <sup>3</sup><br><br>1 ppm |

**Biological limit values****ACGIH Biological Exposure Indices (BEI)**

| Components            | Value    | Determinant            | Specimen            | Sampling Time |
|-----------------------|----------|------------------------|---------------------|---------------|
| Phenol (CAS 108-95-2) | 250 mg/g | Phenol with hydrolysis | Creatinine in urine | *             |

\* - For sampling details, please see the source document.

**Exposure guidelines****US - California OELs: Skin designation**

Phenol (CAS 108-95-2) Can be absorbed through the skin.

**US - Minnesota Haz Subs: Skin designation applies**

Phenol (CAS 108-95-2) Skin designation applies.

**US - Tennessee OELs: Skin designation**

Phenol (CAS 108-95-2) Can be absorbed through the skin.

**US ACGIH Threshold Limit Values: Skin designation**

Phenol (CAS 108-95-2) Danger of cutaneous absorption

**US NIOSH Pocket Guide to Chemical Hazards: Skin designation**

Phenol (CAS 108-95-2) Can be absorbed through the skin.

**US WEEL Guides: Skin designation**

TRIETHYLENETETRAMINE (CAS 112-24-3) Can be absorbed through the skin.

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Phenol (CAS 108-95-2) Can be absorbed through the skin.

**Appropriate engineering controls**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

**Hand protection** Wear appropriate chemical resistant gloves.

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Respiratory protection** Chemical respirator with organic vapor cartridge.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

**9. Physical and chemical properties**

|  |                             |
|--|-----------------------------|
| <b>Appearance</b>                              | Paste.                      |
| <b>Physical state</b>                          | Solid.                      |
| <b>Form</b>                                    | Paste.                      |
| <b>Color</b>                                   | Off-white.                  |
| <b>Odor</b>                                    | Ammoniacal.                 |
| <b>Odor threshold</b>                          | Not available.              |
| <b>pH</b>                                      | Not available.              |
| <b>Melting point/freezing point</b>            | 53.6 °F (12 °C) estimated   |
| <b>Initial boiling point and boiling range</b> | 510.8 °F (266 °C) estimated |

|   |                               |
|---|-------------------------------|
| Flash point   | 276.1 °F (135.6 °C) estimated |
| Evaporation rate                                    | Not available.                |
| Flammability (solid, gas)                           | Not available.                |
| <b>Upper/lower flammability or explosive limits</b> |                               |
| Explosive limit - lower (%)                         | Not available.                |
| Explosive limit - upper (%)                         | Not available.                |
| Vapor pressure                                      | 0.001 hPa estimated           |
| Vapor density                                       | Not available.                |
| Relative density                                    | Not available.                |
| <b>Solubility(ies)</b>                              |                               |
| Solubility (water)                                  | Not available.                |
| Partition coefficient (n-octanol/water)             | Not available.                |
| Auto-ignition temperature                           | 640 °F (337.78 °C) estimated  |
| Decomposition temperature                           | Not available.                |
| Viscosity   | Not available.                |
| <b>Other information</b>                            |                               |
| Density   | 1.65 g/cm3 estimated          |
| Explosive properties                                | Not explosive.                |
| Oxidizing properties                                | Not oxidizing.                |
| Specific gravity                                    | 1.65 estimated                |
| VOC   | 0 g/l                         |

## 10. Stability and reactivity

|                                    |   |
|------------------------------------|---|
| Reactivity                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability                 | Material is stable under normal conditions.   |
| Possibility of hazardous reactions | Hazardous polymerization does not occur.  |
| Conditions to avoid                | Contact with incompatible materials.  |
| Incompatible materials             | Peroxides. Phenols.   |
| Hazardous decomposition products   | No hazardous decomposition products are known.  |

## 11. Toxicological information

### Information on likely routes of exposure

|              |   |
|--------------|---|
| Inhalation   | May cause drowsiness or dizziness. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Prolonged inhalation may be harmful. |
| Skin contact | Causes severe skin burns. Harmful in contact with skin. May cause an allergic skin reaction.  |
| Eye contact  | Causes serious eye damage.  |
| Ingestion    | Causes digestive tract burns.   |

**Symptoms related to the physical, chemical and toxicological characteristics** May cause drowsiness or dizziness. Headache. Nausea, vomiting. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

### Information on toxicological effects

**Acute toxicity** In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Harmful in contact with skin.

| Components                         | Species | Test Results |
|------------------------------------|---------|--------------|
| Methylimidazole, 4- (CAS 822-36-6) |         |              |
| <b>Acute</b>                       |         |              |
| <b>Dermal</b>                      |         |              |
| LD50                               | Rabbit  | 440 mg/kg    |

| Components  | Species  | Test Results   |
|---|--|----------------|
| <b>Oral</b><br>LD50   | Rat  | 751 mg/kg      |
| Phenol (CAS 108-95-2)   |  |                |
| <b>Acute</b><br><b>Dermal</b><br>LD50                                 | Rat  | 669 mg/kg      |
| Titanium Dioxide (CAS 13463-67-7)                                     |  |                |
| <b>Acute</b><br><b>Dermal</b><br>LD50                                 | Hamster  | >= 10000 mg/kg |
| <b>Oral</b><br>LD50   | Rat  | > 10000 mg/kg  |
| TRIETHYLENETETRAMINE (CAS 112-24-3)                                   |  |                |
| <b>Acute</b><br><b>Dermal</b><br><i>Liquid</i><br>LD50                | Rat  | 1465 mg/kg     |
| <b>Oral</b><br><i>Liquid</i><br>LD50                                  | Rat  | 1716 mg/kg     |
| <b>Skin corrosion/irritation</b>                                      | Causes severe skin burns and eye damage.   |                |
| <b>Serious eye damage/eye irritation</b>                              | Causes serious eye damage.   |                |
| <b>Respiratory or skin sensitization</b>                              |  |                |
| <b>Respiratory sensitization</b>                                      | Not a respiratory sensitizer.  |                |
| <b>Skin sensitization</b>   | May cause an allergic skin reaction.   |                |
| <b>Germ cell mutagenicity</b>   | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |                |
| <b>Carcinogenicity</b>  | Risk of cancer cannot be excluded with prolonged exposure.   |                |
| <b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>         |  |                |
| Methylimidazole, 4- (CAS 822-36-6)                                    | 2B Possibly carcinogenic to humans.  |                |
| Phenol (CAS 108-95-2)   | 3 Not classifiable as to carcinogenicity to humans.  |                |
| Titanium Dioxide (CAS 13463-67-7)                                     | 2B Possibly carcinogenic to humans.  |                |
| <b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b> |  |                |
| Not listed.   |  |                |
| <b>US. National Toxicology Program (NTP) Report on Carcinogens</b>    |  |                |
| Not listed.   |  |                |
| <b>Reproductive toxicity</b>  | This product is not expected to cause reproductive or developmental effects.                                     |                |
| <b>Specific target organ toxicity - single exposure</b>               | May cause drowsiness or dizziness.   |                |
| <b>Specific target organ toxicity - repeated exposure</b>             | Not applicable.  |                |
| <b>Aspiration hazard</b>  | Not an aspiration hazard.  |                |
| <b>Chronic effects</b>  | Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.                               |                |

## 12. Ecological information

|  |  |  |
|--|--|--|
| <b>Ecotoxicity</b>                                       | The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. |  |
| <b>Persistence and degradability</b>                     | No data is available on the degradability of any ingredients in the mixture.   |  |
| <b>Bioaccumulative potential</b>                         |  |  |
| <b>Partition coefficient n-octanol / water (log Kow)</b> |  |  |
| Phenol   | 1.46   |  |

|                              |   |
|------------------------------|---|
| <b>Mobility in soil</b>      | No data available.  |
| <b>Other adverse effects</b> | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. |

### 13. Disposal considerations

|  |  |
|--|--|
| <b>Disposal instructions</b>                 | Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.   |
| <b>Hazardous waste code</b>                  | D002: Waste Corrosive material [pH ≤2 or =>12.5, or corrosive to steel]<br>The waste code should be assigned in discussion between the user, the producer and the waste disposal company.  |
| <b>Waste from residues / unused products</b> | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).   |
| <b>Contaminated packaging</b>                | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.   |

### 14. Transport information

#### DOT

|                                     |  |
|-------------------------------------|--|
| <b>UN number</b>                    | UN3259   |
| <b>UN proper shipping name</b>      | Amines, solid, corrosive, n.o.s., or Polyamines, solid, corrosive n.o.s. (TRIETHYLENETETRAMINE, Methylimidazole, 4-), Limited Quantity |
| <b>Transport hazard class(es)</b>   |  |
| <b>Class</b>                        | 8  |
| <b>Subsidiary risk</b>              | -  |
| <b>Label(s)</b>                     | 8  |
| <b>Packing group</b>                | III  |
| <b>Environmental hazards</b>        |  |
| <b>Marine pollutant</b>             | No.  |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling.  |
| <b>Special provisions</b>           | IB8, IP3, T1, TP33   |
| <b>Packaging exceptions</b>         | 154  |
| <b>Packaging non bulk</b>           | 213  |
| <b>Packaging bulk</b>               | 240  |

#### IATA

|                                     |  |
|-------------------------------------|--|
| <b>UN number</b>                    | UN3259   |
| <b>UN proper shipping name</b>      | Amines, solid, corrosive, n.o.s. (TRIETHYLENETETRAMINE, Methylimidazole, 4-), Limited Quantity |
| <b>Transport hazard class(es)</b>   |  |
| <b>Class</b>                        | 8  |
| <b>Subsidiary risk</b>              | -  |
| <b>Packing group</b>                | III  |
| <b>Environmental hazards</b>        | No.  |
| <b>ERG Code</b>                     | 8L   |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling.                        |
| <b>Other information</b>            |  |
| <b>Passenger and cargo aircraft</b> | Allowed with restrictions.   |
| <b>Cargo aircraft only</b>          | Allowed with restrictions.   |

#### IMDG

|                                   |  |
|-----------------------------------|--|
| <b>UN number</b>                  | UN3259   |
| <b>UN proper shipping name</b>    | AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S. (TRIETHYLENETETRAMINE, Methylimidazole, 4-), Limited Quantity |
| <b>Transport hazard class(es)</b> |  |
| <b>Class</b>                      | 8  |
| <b>Subsidiary risk</b>            | -  |
| <b>Packing group</b>              | III  |
| <b>Environmental hazards</b>      |  |
| <b>Marine pollutant</b>           | No.  |

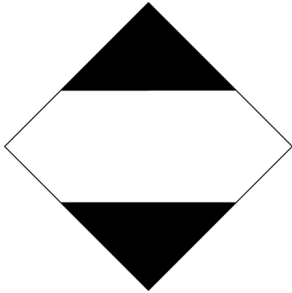
EmS

F-A, S-B

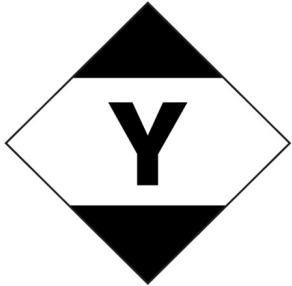
Special precautions for user  
Transport in bulk according to  
Annex II of MARPOL 73/78 and  
the IBC Code

Read safety instructions, SDS and emergency procedures before handling.  
Not applicable.

DOT; IMDG



IATA



### 15. Regulatory information

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

Phenol (CAS 108-95-2) % 1.0

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

Phenol (CAS 108-95-2) Listed.

**Toxic Substances Control Act (TSCA)**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Phenol (CAS 108-95-2) Listed.

**SARA 304 Emergency release notification**

Phenol (CAS 108-95-2) 1000 LBS

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

| Chemical name | CAS number | Reportable quantity (pounds) | Threshold planning quantity (pounds) | Threshold planning quantity, lower value (pounds) | Threshold planning quantity, upper value (pounds) |
|---------------|------------|------------------------------|--------------------------------------|---|---|
| Phenol        | 108-95-2   | 1000                         |                                      | 500   | 10000   |

**SARA 311/312 Hazardous chemical**

Yes

**Classified hazard categories**

Acute toxicity (any route of exposure)  
Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitization  
Specific target organ toxicity (single or repeated exposure)

**SARA 313 (TRI reporting)**

| Chemical name | CAS number | % by wt. |
|---------------|------------|----------|
| Phenol        | 108-95-2   | 5 - 10   |

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Phenol (CAS 108-95-2)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.**FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace**

Phenol (CAS 108-95-2) Low priority

**US state regulations****US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Glass Oxide (CAS 65997-17-3)

Methylimidazole, 4- (CAS 822-36-6)

Phenol (CAS 108-95-2)

Titanium Dioxide (CAS 13463-67-7)

**California Proposition 65****WARNING:** This product can expose you to chemicals including Titanium Dioxide, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Methylimidazole, 4- (CAS 822-36-6)

Listed: January 7, 2011

Titanium Dioxide (CAS 13463-67-7)

Listed: September 2, 2011

**International Inventories**

| Country(s) or region        | Inventory name   | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia                   | Australian Inventory of Industrial Chemicals (AICIS)                   | No                     |
| Canada                      | Domestic Substances List (DSL)   | No                     |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | No                     |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | No                     |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | No                     |
| Korea                       | Existing Chemicals List (ECL)  | No                     |
| New Zealand                 | New Zealand Inventory  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| Taiwan                      | Taiwan Chemical Substance Inventory (TCSI)                             | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | Yes                    |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

|                      |  |
|----------------------|--|
| <b>Issue date</b>    | 05-29-2019   |
| <b>Revision date</b> | 08-01-2023   |
| <b>Version #</b>     | 06   |
| <b>HMIS® ratings</b> | Health: 3<br>Flammability: 1<br>Physical hazard: 0 |
| <b>NFPA ratings</b>  | Health: 3<br>Flammability: 1<br>Instability: 0     |

**Disclaimer**

ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. 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 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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.

**Revision information**

Physical & Chemical Properties: Multiple Properties