THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. IDENTIFICATION

**Product name:** DOWSIL™ 93-006-1 RF Base

**Recommended use of the chemical and restrictions on use**
**Identified uses:** Polymer

**COMPANY IDENTIFICATION**
THE DOW CHEMICAL COMPANY
2211 H.H. DOW WAY
MIDLAND MI 48674
UNITED STATES

**Customer Information Number:** 800-258-2436
SDSQuestion@dow.com

**EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** CHEMTREC +1 800-424-9300
**Local Emergency Contact:** 800-424-9300

## 2. HAZARDS IDENTIFICATION

**Hazard classification**
GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Reproductive toxicity - Category 2

**Label elements**
**Hazard pictograms**

Signal word: **WARNING!**

**Hazards**
H361 Suspected of damaging fertility or the unborn child.

**Precautionary statementsPrevention**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves, protective clothing, eye protection and/or face protection.

**Response**
P308 + P313 IF exposed or concerned: Get medical advice and/or attention.

**Storage**
P405 Store locked up.

**Disposal**
P501 Dispose of contents and/or container to an approved waste disposal plant.

**Other hazards**
No data available
**Further information**
The values listed below represent the percentages of ingredients of unknown toxicity.
The following percentage of the mixture consists of ingredient(s) with unknown acute inhalation toxicity: 11 %

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical nature:** Silicone
This product is a mixture.

| Component | CASRN | Concentration |
|---|---|---|
| Zinc Oxide | 1314-13-2 | >= 22.0 - <= 26.0 % |
| Octamethyl Cyclotetrasiloxane | 556-67-2 | >= 0.03 - <= 0.15 % |

## 4. FIRST AID MEASURES

**Description of first aid measures**
**General advice:**
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air and keep comfortable for breathing; consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms and effects, both acute and delayed:**
Suspected of damaging fertility or the unborn child.

**Indication of any immediate medical attention and special treatment needed**
**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

## 5. FIREFIGHTING MEASURES

**Extinguishing media**

**Suitable extinguishing media:** Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical. Water spray.

**Unsuitable extinguishing media:** None known..

**Special hazards arising from the substance or mixture**

**Hazardous combustion products:** Carbon oxides. Silicon oxides. Oxides of zinc.. Nitrogen oxides (NOx). Oxides of phosphorus.

**Unusual Fire and Explosion Hazards:** Exposure to combustion products may be a hazard to health..

**Advice for firefighters**

**Fire Fighting Procedures:** Use water spray to cool unopened containers.. Evacuate area.. 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.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage..
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

**Special protective equipment for firefighters:** In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

**Environmental precautions:** Do not release the product to the aquatic environment above defined regulatory levels Prevent further leakage or spillage if safe to do so. Retain and dispose of

contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

**Methods and materials for containment and cleaning up:** Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
See sections: 7, 8, 11, 12 and 13.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Avoid contact with eyes. Do not swallow. Avoid prolonged or repeated contact with skin. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings evenafter container is emptied.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

**Conditions for safe storage:** Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component | Regulation | Type of listing | Value |
|---|---|---|---|
| Zinc Oxide | ACGIH | TWA Respirable particulate matter | 2 mg/m3 |
| | ACGIH | STEL Respirable particulate matter | 10 mg/m3 |
| | OSHA Z-1 | TWA total dust | 15 mg/m3 |
| | OSHA Z-1 | TWA respirable fraction | 5 mg/m3 |
| | OSHA Z-1 | TWA | 5 mg/m3 |
| | OSHA Z-1 | TWA Fumes | 5 mg/m3 |
| Octamethyl Cyclotetrasiloxane | US WEEL | TWA | 10 ppm |

**Exposure controls**
**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | |
| **Physical state** | paste |
| **Color** | grey |
| **Odor** | slight |
| **Odor Threshold** | No data available |
| **pH** | Not applicable |
| **Melting point/ range** | No data available |
| **Freezing point** | No data available |
| **Boiling point (760 mmHg)** | Not applicable |
| **Flash point** | **closed cup** >100 °C ( 212 °F) |
| **Evaporation Rate (Butyl Acetate = 1)** | Not applicable |
| **Flammability (solid, gas)** | Not classified as a flammability hazard |
| **Lower explosion limit** | No data available |
| **Upper explosion limit** | No data available |
| **Vapor Pressure** | Not applicable |
| **Relative Vapor Density (air = 1)** | No data available |
| **Relative Density (water = 1)** | 1.3 |
| **Water solubility** | No data available |
| **Partition coefficient: n-octanol/water** | No data available |

| | |
|---|---|
| **Auto-ignition temperature** | No data available |
| **Decomposition temperature** | No data available |
| **Dynamic Viscosity** | Not applicable |
| **Kinematic Viscosity** | Not applicable |
| **Explosive properties** | Not explosive |
| **Oxidizing properties** | The substance or mixture is not classified as oxidizing. |
| **Molecular weight** | No data available |
| **Particle size** | No data available |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. When heated to temperatures above 180 °C (356 °F) in the presence of air, trace quantities of formaldehyde may be released. Adequate ventilation is required.

**Conditions to avoid:** None known.

**Incompatible materials:** Avoid contact with oxidizing materials.

**Hazardous decomposition products:**
Decomposition products can include and are not limited to: Formaldehyde.

## 11. TOXICOLOGICAL INFORMATION

*Toxicological information appears in this section when such data are available.*

**Information on likely routes of exposure**
Eye contact, Skin contact, Ingestion.

**Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)**

**Acute Toxicity Endpoints:**
Not classified based on available information.

**Acute oral toxicity**

**Information for the Product:**

Very low toxicity if swallowed. Swallowing may result in gastrointestinal irritation. May cause nausea and vomiting.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg Estimated.

**Information for components:**

**Zinc Oxide**
LD50, Rat, male and female, > 5,000 mg/kg OECD 401 or equivalent

**Octamethyl Cyclotetrasiloxane**
LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

**Acute dermal toxicity**

**Information for the Product:**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rabbit, > 2,000 mg/kg Estimated.

**Information for components:**

**Zinc Oxide**
LD50, Rat, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

**Octamethyl Cyclotetrasiloxane**
LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

**Information for the Product:**

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

**Information for components:**

**Zinc Oxide**
LC50, Rat, male and female, 4 Hour, dust/mist, > 5.7 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

**Octamethyl Cyclotetrasiloxane**
LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

**Skin corrosion/irritation**

Not classified based on available information.

**Information for the Product:**

Based on information for component(s):
Brief contact is essentially nonirritating to skin.
May cause drying and flaking of the skin.

**Information for components:**

**Zinc Oxide**
Prolonged contact is essentially nonirritating to skin.

**Octamethyl Cyclotetrasiloxane**
Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Information for the Product:**

Based on information for component(s):
May cause slight temporary eye irritation.
May cause mild eye discomfort.

**Information for components:**

**Zinc Oxide**
May cause slight temporary eye irritation.
Corneal injury is unlikely.

**Octamethyl Cyclotetrasiloxane**
Essentially nonirritating to eyes.

**Sensitization**

**For skin sensitization:**
Not classified based on available information.

**For respiratory sensitization:**
Not classified based on available information.

**Information for the Product:**

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Information for components:**

**Zinc Oxide**
Did not cause allergic skin reactions when tested in humans.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Octamethyl Cyclotetrasiloxane**
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Not classified based on available information.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
Available data are inadequate to determine single exposure specific target organ toxicity.

**Octamethyl Cyclotetrasiloxane**
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Aspiration Hazard**

Not classified based on available information.

**Information for the Product:**

Based on physical properties, not likely to be an aspiration hazard.

**Information for components:**

**Zinc Oxide**
Based on physical properties, not likely to be an aspiration hazard.

**Octamethyl Cyclotetrasiloxane**
Material is not classified as an aspiration hazard based on insufficient data, however materials with low viscosity may be aspirated into the lungs during ingestion or vomiting.

**Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)**

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Not classified based on available information.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
In humans, effects have been reported on the following organs:
Respiratory tract.
In animals, effects have been reported on the following organs:
Lung.

**Octamethyl Cyclotetrasiloxane**
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Respiratory tract.
Female reproductive organs.

**Carcinogenicity**

Not classified based on available information.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
No relevant data found.

**Octamethyl Cyclotetrasiloxane**
Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

**Teratogenicity**

Suspected of damaging fertility or the unborn child.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
No relevant data found.

**Octamethyl Cyclotetrasiloxane**
Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

**Octamethyl Cyclotetrasiloxane**
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

**Mutagenicity**

Not classified based on available information.

**Information for the Product:**

Product test data not available.

**Information for components:**

**Zinc Oxide**
In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were predominantly negative.

**Octamethyl Cyclotetrasiloxane**
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

## 12. ECOLOGICAL INFORMATION

*Ecotoxicological information appears in this section when such data are available.*

**Toxicity**

**Zinc Oxide**

**Acute toxicity to fish**
LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 0.14 - 1.1 mg/l
LC50, Danio rerio (zebra fish), 96 Hour, 1 - 10 mg/l

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), 48 Hour, 1 - 10 mg/l

**Acute toxicity to algae/aquatic plants**
IC50, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, 0.136 mg/l
NOEC, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, 0.019 mg/l

**Toxicity to bacteria**
EC50, activated sludge, 3 Hour, Respiration rates., 0.1 mg/l

**Chronic toxicity to fish**
NOEC, Danio rerio (zebra fish), 32 d, mortality, >= 0.540 mg/l

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 0.04 mg/l

**Octamethyl Cyclotetrasiloxane**

**Acute toxicity to fish**
Based on testing of comparable products: The estimated maximum aqueous concentration of Octamethyl Cyclotetrasiloxane (D4) from migration to water from the product as supplied is below the D4 established no-effect threshold (< 0.0079 mg/L) for aquatic organisms.

**Chronic toxicity to aquatic invertebrates**
Based on testing for product(s) in this family of materials:
Not classified due to data which are conclusive although insufficient for classification.

**Persistence and degradability**

**Zinc Oxide**

**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**Octamethyl Cyclotetrasiloxane**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
**Biodegradation:** 3.7 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 310

**Stability in Water (1/2-life)**
Hydrolysis, DT50, 3.9 d, pH 7, Half-life Temperature 25 °C, OECD Test Guideline 111

**Bioaccumulative potential**

**Zinc Oxide**

**Bioaccumulation:** Partitioning from water to n-octanol is not applicable.

**Octamethyl Cyclotetrasiloxane**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
**Partition coefficient: n-octanol/water(log Pow):** 6.49 Measured
**Bioconcentration factor (BCF):** 12,400 Pimephales promelas (fathead minnow) Measured

**Mobility in soil**

**Zinc Oxide**

No relevant data found.

**Octamethyl Cyclotetrasiloxane**

**Partition coefficient (Koc):** 16596 OECD Test Guideline 106

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 1: Identified Uses. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

**Treatment and disposal methods of used packaging:** Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. Do not re-use containers for any purpose.

## 14. TRANSPORT INFORMATION

**DOT**

| | |
|---|---|
| **Proper shipping name** | Environmentally hazardous substance, solid, n.o.s.(Zinc oxide) |
| **UN number** | UN 3077 |
| **Class** | 9 |
| **Packing group** | III |
| **Marine pollutant** | Zinc oxide |

**Classification for SEA transport (IMO-IMDG):**

| | |
|---|---|
| **Proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Zinc oxide) |
| **UN number** | UN 3077 |
| **Class** | 9 |
| **Packing group** | III |
| **Marine pollutant** | Zinc oxide |
| **Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code** | Consult IMO regulations before transporting ocean bulk |

**Classification for AIR transport (IATA/ICAO):**

| | |
|---|---|
| **Proper shipping name** | Environmentally hazardous substance, solid, n.o.s.(Zinc oxide) |
| **UN number** | UN 3077 |
| **Class** | 9 |
| **Packing group** | III |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## 15. REGULATORY INFORMATION

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**
Reproductive toxicity

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**
The following components are subject to reporting levels established by SARA Title III, Section 313:

| **Components** | **CASRN** |
|---|---|
| Zinc Oxide | 1314-13-2 |
| C.I. Pigment Yellow 119 | 68187-51-9 |
| Lead oxide | 1317-36-8 |

**Pennsylvania Right To Know**
The following chemicals are listed because of the additional requirements of Pennsylvania law:

| **Components** | **CASRN** |
|---|---|
| Polydimethylsiloxane hydroxy-terminated | 70131-67-8 |
| Zinc Oxide | 1314-13-2 |
| Cristobalite | 14464-46-1 |
| Diatomaceous earth, Flux-calcined | 68855-54-9 |
| Ethyl polysilicate | 11099-06-2 |
| Chromium oxide (Cr2O3) | 1308-38-9 |

**California Prop. 65**
WARNING: This product can expose you to chemicals including Lead oxide, Cadmium oxide, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

**United States TSCA Inventory (TSCA)**
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

## 16. OTHER INFORMATION

**Hazard Rating System**
**NFPA**

| Health | Flammability | Instability |
|---|---|---|
| 1 | 1 | 0 |

**HMIS**

| Health | Flammability | Physical Hazard |
|---|---|---|
| 0* | 1 | 0 |

* = Chronic Effects (See Hazards Identification)

**Revision**
Identification Number: 4102992 / A001 / Issue Date: 09/03/2024 / Version: 12.2

In case this version of the SDS contains significant changes from the previous version, they are listed below or noted by bold, double bars in the left-hand margin throughout this document.
Changes encompass identification, hazards, tox/eco-tox information and the addition/removal of the ingredients, and regulatory information, hazard information, uses, risk management measures and other key regulatory changes of the product. Detailed explanation of the changes can be obtained upon request.

**Legend**

| | |
|---|---|
| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| OSHA Z-1 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| STEL | Short-term exposure limit |
| TWA | 8-hour, time-weighted average |
| US WEEL | USA. Workplace Environmental Exposure Levels (WEEL) |

**Full text of other abbreviations**
AIIC - Australian Inventory of Industrial Chemicals; 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; 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; TECI - Thailand Existing Chemicals 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

**Information Source and References**
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The informationherein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express orimplied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
US