

# SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

# Product name: DOWSIL™ 758 Silicone Weather Barrier Sealant

Issue Date: 10/04/2019 Print Date: 10/05/2019

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™ 758 Silicone Weather Barrier Sealant

Recommended use of the chemical and restrictions on use Identified uses: Construction materials and additives Adhesive, binding agents

COMPANY IDENTIFICATION THE DOW CHEMICAL COMPANY 2030 DOW CENTER MIDLAND MI 48674-0000 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 29 CFR 1910.1200 Serious eye damage - Category 1 Skin sensitisation - Category 1 Specific target organ toxicity - repeated exposure - Category 2 - Oral

Label elements Hazard pictograms



Signal word: DANGER!

# Hazards

May cause an allergic skin reaction. Causes serious eye damage. May cause damage to organs (Blood) through prolonged or repeated exposure if swallowed.

# **Precautionary statements**

# Prevention

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/ eye protection/ face protection.

# Response

IF ON SKIN: Wash with plenty of soap and water. 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. Get medical advice/ attention if you feel unwell. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

# Disposal

Dispose of contents/ container to an approved waste disposal plant.

# Other hazards

No data available

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

Chemical nature: Silicone, Sealant

This product is a mixture.

Component	CASRN	Concentration
Octamethyltrisiloxane	107-51-7	>= 2.7 - <= 4.2 %
Vinyltri (methylethylketoxime) silane	2224-33-1	>= 3.0 - <= 4.0 %

# 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; if effects occur, consult a physician.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists.

Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

**Eye contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: No emergency medical treatment necessary.

### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

# **5. FIREFIGHTING MEASURES**

### **Extinguishing media**

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

Unsuitable extinguishing media: None known...

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** Metal oxides. Formaldehyde. Carbon oxides. Silicon oxides. Nitrogen oxides (NOx).

**Unusual Fire and Explosion Hazards:** Exposure to combustion products may be a hazard to health.. Fire burns more vigorously than would be expected..

### Advice for firefighters

**Fire Fighting Procedures:** Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

**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:** Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

**Environmental precautions:** Discharge into the environment must be avoided. 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, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur. See sections: 7, 8, 11, 12 and 13.

# 7. HANDLING AND STORAGE

**Precautions for safe handling:** Do not get on skin or clothing. Do not swallow. Do not get in eyes. Keep container tightly closed. Protect from moisture. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

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

Do not store with the following product types: Strong oxidizing agents. Unsuitable materials for containers: Do not store in or use iron or steel containers.

# 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
Octamethyltrisiloxane	Dow IHG	TWA	20 ppm

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing:

Methyl ethyl ketoxime

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

# 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 chemical goggles.

### **Skin protection**

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). 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:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**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.

Appearance	
Physical state	paste
Color	white
Odor	characteristic
Odor Threshold	No data available
рН	Not applicable
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	Not applicable
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)	1.39

# 9. PHYSICAL AND CHEMICAL PROPERTIES

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 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde.

Conditions to avoid: Do not expose to temperatures above 212 °F/100 °C. Exposure to moisture

Incompatible materials: Oxidizing agents

# Hazardous decomposition products:

Decomposition products can include and are not limited to: Formaldehyde. Methyl Ethyl Ketoxime.

# 11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is 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 oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

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:

### Octamethyltrisiloxane

LD50, Rat, female, > 2,000 mg/kg No deaths occurred at this concentration.

### Vinyltri (methylethylketoxime) silane

LD50, Rat, > 2,000 mg/kg

### Acute dermal toxicity

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:

### **Octamethyltrisiloxane**

LD50, Rat, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

### Vinyltri (methylethylketoxime) silane

LD50, Rat, > 2,000 mg/kg

### Acute inhalation toxicity

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:

### Octamethyltrisiloxane

LC50, Rat, male and female, 4 Hour, vapour, > 22.6 mg/l No deaths occurred at this concentration.

# Vinyltri (methylethylketoxime) silane

The LC50 has not been determined.

### Skin corrosion/irritation

Based on information for component(s): Prolonged exposure not likely to cause significant skin irritation.

# Information for components:

### **Octamethyltrisiloxane**

Brief contact is essentially nonirritating to skin.

### Vinyltri (methylethylketoxime) silane

Brief contact may cause slight skin irritation with local redness.

# Serious eye damage/eye irritation

Based on information for component(s):

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

### Information for components:

### **Octamethyltrisiloxane**

May cause slight temporary eye irritation. Corneal injury is unlikely.

### Vinyltri (methylethylketoxime) silane

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

# Sensitization

For skin sensitization: Contains component(s) which have caused allergic skin sensitization in guinea pigs. Contains component(s) which have demonstrated the potential for contact allergy in mice.

For respiratory sensitization: No relevant information found.

### Information for components:

### Octamethyltrisiloxane

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

For respiratory sensitization: No relevant data found.

# Vinyltri (methylethylketoxime) silane

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization: No relevant data found.

# Specific Target Organ Systemic Toxicity (Single Exposure)

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

### Information for components:

### **Octamethyltrisiloxane**

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

### Vinyltri (methylethylketoxime) silane

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

# **Aspiration Hazard**

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

### Information for components:

# <u>Octamethyltrisiloxane</u>

Based on available information, aspiration hazard could not be determined.

# Vinyltri (methylethylketoxime) silane

Based on available information, aspiration hazard could not be determined.

# 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)

Contains component(s) which have been reported to cause effects on the following organs in animals: Liver.

Blood.

This material contains octamethyltrisiloxane (L3). Repeated inhalation exposure in rats to L3 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.

# Information for components:

# **Octamethyltrisiloxane**

In animals, effects have been reported on the following organs: Liver

This material contains octamethyltrisiloxane (L3). Repeated inhalation exposure in rats to L3 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.

# Vinyltri (methylethylketoxime) silane

In animals, effects have been reported on the following organs: Blood.

# Carcinogenicity

During use of the material, small amounts of methylethylketoxime (MEKO) will be released. Rodents exposed to chronic MEKO inhalation throughout their lifetimes showed significant increases in liver tumour rates.

# Information for components:

# **Octamethyltrisiloxane**

Did not cause cancer in laboratory animals.

# Vinyltri (methylethylketoxime) silane

No relevant data found.

Teratogenicity

No relevant data found.

### Information for components:

# **Octamethyltrisiloxane**

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

# Vinyltri (methylethylketoxime) silane

No relevant data found.

# **Reproductive toxicity**

No relevant data found.

### Information for components:

### Octamethyltrisiloxane

In animal studies, did not interfere with fertility. In animal studies, did not interfere with reproduction.

# Vinyltri (methylethylketoxime) silane

No relevant data found.

### Mutagenicity

No relevant data found.

### Information for components:

### Octamethyltrisiloxane

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

### Vinyltri (methylethylketoxime) silane

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 is available.

# Toxicity

# **Octamethyltrisiloxane**

### Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms. No toxicity at the limit of solubility LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, > 0.0191 mg/l, OECD Test Guideline 203

# Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.02 mg/l, OECD Test Guideline 202

# Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility EC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, > 0.0094 mg/l, OECD Test Guideline 201

# Toxicity to bacteria

For similar material(s): EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l, OECD Test Guideline 209

# Chronic toxicity to fish

No toxicity at the limit of solubility

NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, > 0.027 mg/l

# Chronic toxicity to aquatic invertebrates

No toxicity at the limit of solubility NOEC, Daphnia magna (Water flea), flow-through test, 21 d, > 0.015 mg/l

# Vinyltri (methylethylketoxime) silane

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 120 mg/l, OECD Test Guideline 203 LC50, Oryzias latipes (Orange-red killifish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

# Persistence and degradability

# <u>Octamethyltrisiloxane</u>

**Biodegradability:** Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). 10-day Window: Not applicable **Biodegradation:** 0 % **Exposure time:** 28 d **Method:** OECD Test Guideline 310 or Equivalent

Photodegradation Atmospheric half-life: 8.94 d Method: Estimated.

# Vinyltri (methylethylketoxime) silane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

# Stability in Water (1/2-life)

Hydrolysis, DT50, < 1 min, Half-life Temperature 2 °C, OECD Test Guideline 111

# **Bioaccumulative potential**

# **Octamethyltrisiloxane**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient: n-octanol/water(log Pow): 5.35 Estimated. Bioconcentration factor (BCF): >= 500 Pimephales promelas (fathead minnow) OECD Test Guideline 305

# Vinyltri (methylethylketoxime) silane

Bioaccumulation: No relevant data found.

# Mobility in soil

# **Octamethyltrisiloxane**

Potential for mobility in soil is slight (Koc between 2000 and 5000).

Partition coefficient (Koc): 3179 Estimated.

# Vinyltri (methylethylketoxime) silane

No relevant data found.

# 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 solely 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 MSDS SECTION: Composition Information. 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 Section10 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 solely of the waste generator. Do not re-use containers for any purpose.

# 14. TRANSPORT INFORMATION

DOT

Proper shipping name
UN number
Class
Packing group
Reportable Quantity

Environmentally hazardous substance, solid, n.o.s.(Xylene) UN 3077 9 III Xylene

# Classification for SEA transport (IMO-IMDG):

Not regulated for transport Consult IMO regulations before transporting ocean bulk

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

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

Serious eye damage or eye irritation

Respiratory or skin sensitisation

Specific target organ toxicity (single or repeated exposure)

# Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

# Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)
Ethylbenzene	100-41-4	1000 lbs RQ
Ethylbenzene	100-41-4	100 lbs RQ (F003)
Toluene	108-88-3	1000 lbs RQ
Toluene	108-88-3	100 lbs RQ (F005)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)
Benzene	71-43-2	10 lbs RQ (D018)
Benzene	71-43-2	10 lbs RQ

# Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Calcium carbonate treated with stearic acid	Not available
Trimethylated silica	68988-56-7
Polydimethylsiloxane hydroxy-terminated	70131-67-8
Octamethyltrisiloxane	107-51-7
Vinyltri (methylethylketoxime) silane	2224-33-1
Siloxanes and silicones, dimethyl	63148-62-9

# California Prop. 65

WARNING: This product can expose you to chemicals including Ethylbenzene, Benzene, which is/are known to the State of California to cause cancer, and Toluene, Benzene, 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.

# 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
	3	1	0
H	MIS		
	Health	Flammability	Physical Hazard
	3*	1	0

\* = Chronic Effects (See Hazards Identification)

# Revision

Identification Number: 4091492 / A001 / Issue Date: 10/04/2019 / Version: 8.0 Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

# Legend

Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time weighted average

# Full text of other 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; 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

### 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 information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, 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.