

Date: July 14, 2015

Ref: Dice Flash 190 Fuel Additive (Methyl Carbitol)  
Safety Data Sheet (SDS), Section 14 related to transportation

The Safety Data Sheet (SDS) provided with your shipment is for the chemical product name “Methyl Carbitol”, which is sold under the Aviation Laboratories trade name “Dice Flash 190 Fuel Additive” (Dice).

The DOW Chemical Company, which manufactures this product for Aviation Laboratories, guarantees the technical accuracy and legal adherence of this SDS to all applicable chemical product laws and transportation requirements.

Section 14 of the SDS, with the heading “Transportation Information” represents transportation classifications for a “bulk” quantity of Dice (Methyl Carbitol). The classification of a “bulk” chemical, as referenced in the US Code of Federal Regulations (CFR), Parts 100-185, means any capacity greater than 119 gallons.

Therefore, when Dice (Methyl Carbitol) is in quantities greater than 119 gallons, the US Department of Transportation (DOT) considers it a “Combustible Liquid” and regulates it as such; however, for quantities less than 119 gallons – for example, 55-gallon drums or 5-gallon pails – the DOT does not regulate transportation of Dice.

Please note that this is guidance related to non-bulk quantities of Dice. Anyone shipping Dice (in any quantity) should ensure that the shipment meets all State, Federal, and International shipping regulations.

For more information regarding this SDS, or anything related to “Dice”, please contact:

Aviation Laboratories, inc.  
5401 Mitchelldale Street, Suite B6  
Houston, TX 77092

Tel: 713-864-6677  
Email: sales @avlab.com





# SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

**Product name: Methyl CARBITOL™ Solvent Industrial Grade**

**Issue Date: 08/02/2019**

**Print Date: 08/03/2019**

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.

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## 1. IDENTIFICATION

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**Product name:** Methyl CARBITOL™ Solvent Industrial Grade

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Fuel additive. Industrial solvent. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

**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

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 4

Reproductive toxicity - Category 2

**Label elements**

**Hazard pictograms**



Signal word: **WARNING!**

**Hazards**

Combustible liquid.  
Suspected of damaging fertility or the unborn child.

**Precautionary statements****Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**

IF exposed or concerned: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool.  
Store locked up.

**Disposal**

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

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Synonyms:** Glycol ether

This product is a substance.

**Component****CASRN****Concentration**

Diethylene glycol monomethyl ether

111-77-3

> 99.0 %

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**4. FIRST AID MEASURES**

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**Description of first aid measures****General advice:**

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:** 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:** 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:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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**5. FIREFIGHTING MEASURES**

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**Extinguishing media**

**Suitable extinguishing media:** Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

**Unsuitable extinguishing media:** No data available

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

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:. Carbon monoxide.. Carbon dioxide..

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids..

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Burning liquids may be extinguished by dilution with water.. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage..

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. If protective equipment is not available or not used, fight fire from a protected location or safe distance..

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Isolate area. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel. See Section 10 for more specific information.

### Storage stability

|             |          |
|-------------|----------|
| <b>Bulk</b> | 6 Month  |
| <b>Drum</b> | 24 Month |

## 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  |
|--|------------|-----------------|--------|
| Diethylene glycol monomethyl ether           | Dow IHG    | TWA             | 10 ppm |
| Further information: SKIN: Absorbed via skin |            |                 |        |

### 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:** Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

**Other protection:** No precautions other than clean body-covering clothing should be needed.

**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 discomfort is experienced, use an approved air-purifying respirator.

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

|  |  |
|--|--|
| Physical state                         | Liquid.  |
| Color                                  | Colorless  |
| Odor                                   | Mild   |
| Odor Threshold                         | No test data available   |
| pH                                     | No test data available   |
| Melting point/range                    | Not applicable to liquids  |
| Freezing point                         | -84 °C ( -119 °F) <i>Literature</i>                                  |
| Boiling point (760 mmHg)               | 194 °C ( 381 °F) <i>Literature</i>                                   |
| Flash point                            | <b>closed cup</b> 91 °C ( 196 °F) at 1,013 hPa <i>ASTM D3278</i>     |
| Evaporation Rate (Butyl Acetate = 1)   | 0.02 <i>Literature</i>   |
| Flammability (solid, gas)              | Not applicable to liquids  |
| Lower explosion limit                  | 1.38 % vol Vapour <i>Literature</i>                                  |
| Upper explosion limit                  | 22.7 % vol Vapour <i>Literature</i>                                  |
| Vapor Pressure                         | 0.19 mmHg at 20 °C (68 °F) <i>Literature</i>                         |
| Relative Vapor Density (air = 1)       | 4.2 <i>Literature</i>  |
| Relative Density (water = 1)           | 1.020 at 20 °C (68 °F) / 20 °C <i>Literature</i>                     |
| Water solubility                       | completely soluble   |
| Partition coefficient: n-octanol/water | log Pow: -0.47 <i>Measured</i>                                       |
| Auto-ignition temperature              | 215 °C (419 °F) <i>Literature</i>                                    |
| Decomposition temperature              | No test data available   |
| Dynamic Viscosity                      | 3.9 mPa.s at 20 °C (68 °F) <i>Literature</i>                         |
| Kinematic Viscosity                    | 3.9 mm <sup>2</sup> /s at 20 °C (68 °F) <i>Literature</i>            |
| Explosive properties                   | No   |
| Oxidizing properties                   | No   |
| Liquid Density                         | 1.022 g/cm <sup>3</sup> at 20 °C (68 °F) <i>Literature</i>           |
| Molecular weight                       | 120.2 g/mol  |
| Molecular formula                      | CH <sub>3</sub> O (CH <sub>2</sub> CH <sub>2</sub> O) <sub>2</sub> H |

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

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Do not distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**Hazardous decomposition products:** Decomposition products can include and are not limited to: Aldehydes.. Ketones.. Organic acids..

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## 11. TOXICOLOGICAL INFORMATION

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

### Acute toxicity

#### Acute oral toxicity

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

LD50, Mouse, 7,128 mg/kg

#### Acute dermal toxicity

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

LD50, Rabbit, 9,404 mg/kg

#### Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. For respiratory irritation and narcotic effects: No relevant data found.

LC0, Rat, 6 Hour, vapour, > 1.2 mg/l The LC50 value is greater than the Maximum Attainable Concentration. No deaths occurred at this concentration.

### Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

### Serious eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues.  
May cause slight temporary eye irritation.

### Sensitization

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)**

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

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

In animals, diethylene glycol methyl ether has been reported to produce effects in the liver and kidney and, only after very high oral doses, in the testes and thymus.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

In animals, diethylene glycol methyl ether is slightly toxic to the fetus at doses nontoxic to the mother following skin contact; birth defects have been seen only following high oral doses which have little relevance to human exposure.

**Reproductive toxicity**

In animal studies, a similar material has been shown not to interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

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

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**12. ECOLOGICAL INFORMATION**

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

**Toxicity**

**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, Pimephales promelas (fathead minnow), static test, 96 Hour, 5,741 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1,192 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Biomass, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

EC50, activated sludge, 0.5 Hour, > 1,000 mg/l

**Persistence and degradability**



**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

**Biodegradation:** 100 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 1.73 mg/mg

**Photodegradation**

**Atmospheric half-life:** 4.9 Hour

**Method:** Estimated.

#### Bioaccumulative potential

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** -0.47 at 20 °C Measured

#### Mobility in soil

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** < 1 Estimated.

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### 13. DISPOSAL CONSIDERATIONS

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**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.

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### 14. TRANSPORT INFORMATION

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#### DOT

|                             |  |
|-----------------------------|--|
| <b>Proper shipping name</b> | Combustible liquid, n.o.s.(Diethylene Glycol Monomethyl Ether) |
| <b>UN number</b>            | NA 1993  |
| <b>Class</b>                | CBL  |
| <b>Packing group</b>        | III  |

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

|   |  |
|---|--|
|   | Not regulated for transport                            |
| <b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the</b> | Consult IMO regulations before transporting ocean bulk |

**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.

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**15. REGULATORY INFORMATION**

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

Flammable (gases, aerosols, liquids, or solids)

Reproductive toxicity

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

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

| <b>Components</b>                   | <b>CASRN</b> |
|-------------------------------------|--------------|
| Diethylene glycol monomethyl ether  | 111-77-3     |
| Triethylene glycol monomethyl ether | 112-35-6     |
| Diethylene glycol                   | 111-46-6     |
| Ethylene glycol monobutyl ether     | 111-76-2     |
| Diethylene glycol monoethyl ether   | 111-90-0     |

**Pennsylvania Worker and Community Right-To-Know Act:**

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

| <b>Components</b>                  | <b>CASRN</b> |
|------------------------------------|--------------|
| Diethylene glycol monomethyl ether | 111-77-3     |

**California Prop. 65**

WARNING: This product can expose you to chemicals including Ethylene glycol, 2-Methoxyethanol, Methanol, Ethylene glycol monoethyl ether, 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](http://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

### Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

### Hazard Rating System

#### NFPA

| Health | Flammability | Instability |
|--------|--------------|-------------|
| 0      | 2            | 0           |

### Revision

Identification Number: 167461 / A001 / Issue Date: 08/02/2019 / 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.

US