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. Product and Company Identification

Product Name
Developer DS2100

COMPANY IDENTIFICATION
The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview
Color: Colorless
Physical State: Liquid
Odor: Ether

Hazards of product:


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

Potential Health Effects
Eye Contact: May cause moderate eye irritation. Corneal injury is unlikely. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. May cause more severe response on covered skin (under clothing, gloves).
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Skin Sensitization: Contains component(s) which have shown limited potential to produce allergic skin reactions.

Inhalation: Prolonged excessive exposure may cause adverse effects. Vapor may cause irritation of the upper respiratory tract (nose and throat). Excessive exposure may cause headache, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects, including death.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Effects of Repeated Exposure: Contains component(s) which have been reported to cause effects on the following organs in animals: Kidney. Liver. Adrenal gland.

Birth Defects/Developmental Effects: Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother.

### 3. Composition Information

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipropylene glycol dimethyl ether</td>
<td>111109-77-4</td>
<td>30.0 - 35.0 %</td>
</tr>
<tr>
<td>Naphtha (petroleum), hydrotreated heavy, non arom.</td>
<td>64742-48-9</td>
<td>65.0 - 70.0 %</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**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.

**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.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use resuscitor protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Ingestion:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

**Notes to Physician:** If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

**Medical Conditions Aggravated by Exposure:** Skin contact may aggravate preexisting dermatitis.

### 5. Fire Fighting Measures

**Extinguishing Media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**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. 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. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an
ignition source. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

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.

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. When product is stored in closed containers, a flammable atmosphere can develop.

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.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Absorb with materials such as: Sand. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Refer to Section 7, Handling, for additional precautionary measures. 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.

7. Handling and Storage

Handling

General Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Keep away from heat, sparks and flame. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Storage

Store in a dry place.

8. Exposure Controls / Personal Protection

Exposure Limits

None established

Personal Protection

Eye/Face Protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin 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. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

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. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

**Respiratory Protection:** Use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

**Engineering Controls**

**Ventilation:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Ether</td>
</tr>
<tr>
<td>Flash Point - Closed Cup</td>
<td>60 °C (140 °F) Literature</td>
</tr>
<tr>
<td>Flammable Limits In Air</td>
<td>Lower: 1.3 % (V) Literature</td>
</tr>
<tr>
<td></td>
<td>Upper: 8.8 % (V) Literature</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>312 °C (594 °F) Literature</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.9 - 1.3 hPa @ 20 °C Literature</td>
</tr>
<tr>
<td>Boiling Point (760 mmHg)</td>
<td>175 °C (347 °F) Literature</td>
</tr>
<tr>
<td>Vapor Density (air = 1)</td>
<td>No test data available</td>
</tr>
<tr>
<td>Specific Gravity (H2O = 1)</td>
<td>No test data available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>&lt; -60 °C (- -76 °F) (major component)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in Water (by weight)</td>
<td>0.1 - 37 % @ 20 °C</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Dynamic Viscosity</td>
<td>1.1 - 2.0 mPa.s Literature</td>
</tr>
</tbody>
</table>

### 10. Stability and Reactivity

**Stability/Instability**
Thermally stable at typical use temperatures.

**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 Polymerization**
Will not occur.

**Thermal Decomposition**
Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Ketones. Organic acids.
11. Toxicological Information

Acute Toxicity
- Ingestion
  - Single dose oral LD50 has not been determined.
- Skin Absorption
  - The dermal LD50 has not been determined.
- Sensitization
  - Skin
    - Contains component(s) which have shown limited potential to produce allergic skin reactions.

Repeated Dose Toxicity
- Contains component(s) which have been reported to cause effects on the following organs in animals:
  - Kidney
  - Liver
  - Adrenal gland
  - For the major component(s): Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

Developmental Toxicity
- Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother.
- Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Reproductive Toxicity
- Contains component(s) which did not interfere with reproduction in animal studies.

Genetic Toxicology
- Contains a component(s) which was negative in In Vitro genetic toxicity studies.
- Contains a component(s) which was negative in animal genetic toxicity studies.

12. Ecological Information

CHEMICAL FATE
- Data for Component: Dipropylene glycol dimethyl ether
  - Movement & Partitioning
    - Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
    - Henry’s Law Constant (H): 3.27E-7 atm^-1 m³/mol Water Estimated
    - Partition coefficient, n-octanol/water (log Pow): 0.42 Measured
    - Partition coefficient, soil organic carbon/water (Koc): 2 Estimated
    - Bioconcentration Factor (BCF): 4; fish; Measured

Persistence and Degradability
- Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Indirect Photodegradation with OH Radicals
- Rate Constant
  - Atmospheric Half-life
    - 3.8 h
  - Method: Estimated

OECD Biodegradation Tests:
- Biodegradation
  - Exposure Time
    - 18 - 32 %
    - 25 %
  - Method
    - OECD 301B Test
    - OECD 302B Test

Theoretical Oxygen Demand: 2.17 mg/mg
- Data for Component: Naphtha (petroleum), hydro-treated heavy, non arom.

Movement & Partitioning
- Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
- Partition coefficient, n-octanol/water (log Pow): 2.1 - 6.5 Estimated
Persistence and Degradability

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

**OECD Biodegradation Tests:**

<table>
<thead>
<tr>
<th>Biodegradation</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 %</td>
<td></td>
<td>OECD 301D Test</td>
</tr>
</tbody>
</table>

**ECOTOXICITY**

Data for Component: *Dipropylene glycol dimethyl ether*

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 >100 mg/L in the most sensitive species tested).

**Fish Acute & Prolonged Toxicity**

- LC50, guppy (*Poecilia reticulata*): > 1,000 mg/l

**Aquatic Invertebrate Acute Toxicity**

- LC50, water flea (*Daphnia magna*): > 1,000 mg/l

**Aquatic Invertebrates Chronic Toxicity Value:**

<table>
<thead>
<tr>
<th>ChV Value mg/l</th>
<th>Species</th>
<th>Test Type</th>
<th>Endpoint</th>
<th>Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 mg/l</td>
<td>water flea</td>
<td></td>
<td>number of</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Daphnia magna</em></td>
<td></td>
<td>offspring</td>
<td></td>
</tr>
</tbody>
</table>

**Toxicity to Soil Dwelling Organisms**

LC50, Earthworm *Eisenia fetida*, adult: > 1,000 mg/kg

Data for Component: *Naphtha (petroleum), hydrotreated heavy, non arom.*

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in most sensitive species tested).

**Fish Acute & Prolonged Toxicity**

- LC50, fathead minnow (*Pimephales promelas*): 2,200 mg/l

**Aquatic Invertebrate Acute Toxicity**

- LC50, crustacean *Chaetogammarus marinus*: 2.6 mg/l

**13. Disposal Considerations**

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. DOW HAS 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: Recycler. Reclaimer. Incinerator or other thermal destruction device. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details.

**14. Transport Information**

**DOT Non-Bulk**

**Proper Shipping Name:** PETROLEUM DISTILLATES, N.O.S.

**Hazard Class:** 3  **ID Number:** UN1268  **Packing Group:** PG III
15. Regulatory Information

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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Immediate (Acute) Health Hazard: Yes
Delayed (Chronic) Health Hazard: No
Fire Hazard: Yes
Reactive Hazard: No
Sudden Release of Pressure Hazard: No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.
16. Other Information

Recommended Uses and Restrictions
Developer solvent in photolithographic processes.

Revision
Identification Number: 50837 / 1001 / Issue Date 10/19/2005 / Version: 2.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

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<tr>
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<tr>
<td>OEL</td>
<td>Occupational Exposure Limit</td>
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<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
</tr>
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<td>Time Weighted Average</td>
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<td>American Conference of Governmental Industrial Hygienists, Inc.</td>
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<tr>
<td>DOW IHG</td>
<td>Dow Industrial Hygiene Guideline</td>
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<tr>
<td>WEEL</td>
<td>Workplace Environmental Exposure Level</td>
</tr>
<tr>
<td>HAZ DES</td>
<td>Hazard Designation</td>
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</table>

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