

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-HOUR EMERGENCY PHONE NUMBER: 517-636-4400

Product: XU 35103.00 EXPERIMENTAL ADVANCED DEVELOPER DS2100

Product Code: 50740

Effective Date: 03/26/99 Date Printed: 08/18/99 MSD: 005364

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Dipropylene glycol dimethyl ether	CAS# 111109-77-4	30-35%
Naphtha, petroleum, hydrotreated heavy	CAS# 064742-48-9	65-70%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

 * Colorless liquid. Mild ether odor. Combustible.
 *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause moderate eye irritation. Corneal injury is unlikely. Vapors may irritate eyes.

SKIN: Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. May rarely cause an allergic skin response.

INGESTION: Single dose oral toxicity is considered to be low. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia.

INHALATION: Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. Signs and symptoms of central nervous system depression, in order of increasing exposure, are headache, dizziness, drowsiness, and incoordination.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Observations in animals include liver, kidney, and adrenal effects when dipropylene glycol dimethyl ether was tested separately.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not

(Continued on Page 2)

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3. HAZARDS IDENTIFICATION (CONTINUED)

cause birth defects; other fetal effects occurred only at doses toxic to the mother. The component(s) is/are: dipropylene glycol dimethyl ether.

REPRODUCTIVE EFFECTS: Contains component(s) which did not interfere with reproduction in animal studies. No relevant information found on other component(s).

4. FIRST AID

EYE: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

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

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: The decision of whether to induce vomiting or not should be made by an attending 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. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: 147 deg F- 149 deg F.

METHOD USED: OC,TCC

AUTOIGNITION TEMPERATURE: 329 deg F - 640 deg F

FLAMMABILITY LIMITS

LFL: 1.3 @ 77 deg F

UFL: 8.8 @ 77 deg F

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds.

(Continued on Page 3)

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5. FIRE FIGHTING MEASURES (CONTINUED)

OTHER FLAMMABILITY INFORMATION: Violent steam generation or eruption may occur upon application of direct water stream. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical, foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

MEDIA TO BE AVOIDED: Do not use direct water stream.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Do not use direct water stream. May spread fire.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective clothing (includes fire fighting helmet, coat, pants, 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 (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Avoid contact with eyes or skin.

PROTECT THE ENVIRONMENT: Contain liquid to prevent contamination of soil, surface water or ground water.

CLEANUP: For large spills: Pump with explosion-proof equipment.
For small spills: Absorb with material such as sand.

7. HANDLING AND STORAGE

HANDLING: Wear protective gloves and goggles. Use respirator if vapor concentration exceeds 300 ppm. 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.

STORAGE: Store in cool, dry place. Storage under inert atmosphere, such as nitrogen is recommended. Use only with adequate

(Continued on Page 4)

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7. HANDLING AND STORAGE (CONTINUED)

ventilation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Use chemical goggles. If vapor exposure causes eye discomfort, use a full-face respirator.

SKIN PROTECTION: Use gloves impervious to this material when prolonged or frequently repeated contact could occur.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

EXPOSURE GUIDELINES: None established.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Colorless liquid.

ODOR: Mild ether odor.

VAPOR PRESSURE: 0.7mm - 1.0mm Hg @ 68 deg F

VAPOR DENSITY: Not determined.

BOILING POINT: 347 deg F - 401 deg F.

SOLUBILITY IN WATER/MISCIBILITY: 0.01 % - 37% @ 20 deg C

SPECIFIC GRAVITY OR DENSITY: Not determined.

EVAPORATION RATE: <0.1 n-Bu Acetate.

VISCOSITY: 1.1 - 2.0 cp.

PERCENT VOLATILE: 100%

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

CONDITIONS TO AVOID: Product can decompose at elevated temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS: Avoid strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.

(Continued on Page 5)

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10. STABILITY AND REACTIVITY (CONTINUED)

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

SKIN: Based on information for components, the LD50 for skin absorption in rabbits is expected to be >2000 mg/kg.

INGESTION: Based on information for components, the oral LD50 for rats is expected to be >2000 mg/kg.

MUTAGENICITY: For dipropylene glycol dimethyl ether: In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative. No relevant information found on other component(s).

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Based on information for dipropylene glycol dimethyl ether. Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). No relevant information found for remaining component(s).

DEGRADATION & PERSISTANCE: Based on information for dipropylene glycol dimethyl ether. Biodegradation reached in CO2 Evolution Test (Modified Sturm Test, OECD Test No. 301B) after 28 days: 18-32%. No relevant information found for remaining components.

ECOTOXICITY: Based on information for dipropylene glycol dimethyl ether. Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100 mg/L in most sensitive species). No relevant information found for remaining components.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods 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 responsi-

(Continued on Page 6)

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13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

bility solely of the waste generator. THE DOW CHEMICAL COMPANY 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 2 (Composition/Information On Ingredients).

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 Customers Information Center at 800-258-2436 or 517-832-1556 for further details.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT): For DOT regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

CANADIAN TDG INFORMATION:

For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented 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 from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS
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SARA 313 INFORMATION: To the best of our knowledge, this product

(Continued on Page 7)

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Effective Date: 03/26/99 Date Printed: 08/18/99 MSD: 005364

REGULATORY INFORMATION: (CONTINUED)

contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD:

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

CANADIAN REGULATIONS

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WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

B3 - combustible liquid with a flash point between 37.8C and 93.3C
D2B - eye or skin irritant
 Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR)

(Continued on Page 8)

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REGULATORY INFORMATION: (CONTINUED)

and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT(%w/w)
Dipropyl glycol dimethyl ether	CAS# 111109-77-4	30-35%
Naptha, petroleum, hydrotreated heavy	CAS# 064742-48-9	65-70%

16. OTHER INFORMATION

MSDS STATUS: Revised Section 13, Disposal.

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The Information Herein Is Given In Good Faith, But No Warranty,
Express Or Implied, Is Made. Consult The Dow Chemical Company For
Further Information.