



01-07912

# Material Safety Data Sheet

The Dow Chemical Company  
Midland, Michigan 48674

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

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24-Hour Emergency Phone Number: 989-636-4400

Product: D.E.R.\* 324 EPOXY RESIN

Product Code: 19242

Effective Date: 05/16/01 Date Printed: 01/08/02 MSD: 000821

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Polymer of epichlorohydrin  
and bisphenol A  
Alkyl glycidyl ether (C12-C14)

CAS# 025085-99-8 83-98%  
CAS# 068609-97-2 2-17%

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

\*\*\*\*\*  
\* Clear light yellow liquid. Epoxy odor. May cause allergic skin \*  
\* reaction. \*  
\*\*\*\*\*

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

**EYE:** May cause slight transient (temporary) eye irritation.  
Corneal injury is unlikely.

**SKIN:** Has caused allergic skin reactions in humans. Prolonged  
exposure not likely to cause significant skin irritation. A  
single prolonged exposure is not likely to result in the  
material being absorbed through skin in harmful amounts.

**INGESTION:** Single dose oral toxicity is considered to be low.  
Small amounts swallowed incidental to normal handling operations  
are not likely to cause injury; swallowing amounts larger than  
that may cause injury.

**INHALATION:** Excessive exposure may cause irritation to upper  
respiratory tract.

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**SYSTEMIC EFFECTS:** Except for skin sensitization, repeated exposures to low molecular weight epoxy resins of this type are not anticipated to cause any significant adverse effects.

**CANCER INFORMATION:** Many studies have been conducted to assess the potential carcinogenicity of diglycidyl ether of bisphenol A (DGEBA). Although some weak evidence of carcinogenicity has been reported in animals, when all of the data are considered, the weight of evidence does not show that DGEBA is carcinogenic. Indeed, the most recent review of the available data by the International Agency for Research on Cancer (IARC) has concluded that DGEBA is not classified as a carcinogen.

**TERATOLOGY (BIRTH DEFECTS):** DGEBA did not cause birth defects or other adverse effects on the fetus when pregnant rabbits were exposed by skin contact, the most likely route of exposure, or when pregnant rats or rabbits were exposed orally.

**REPRODUCTIVE EFFECTS:** In animal studies, DGEBA-based epoxy resins have been shown not to interfere with reproduction.

**4. FIRST AID**

**EYES:** Flush eyes with plenty of water.

**SKIN:** Wash off in flowing water or shower.

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

**INHALATION:** Remove to fresh air if effects occur. Consult a physician.

**NOTE TO PHYSICIAN:** 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:** 350-375F, 176.7-190.6C

**METHOD USED:** PMCC, ASTM D-93

**AUTOIGNITION TEMPERATURE:**

**FLAMMABILITY LIMITS**

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LFL: Not determined.  
UFL: Not determined.**HAZARDOUS COMBUSTION PRODUCTS:** Under conditions of imperfect combustion and/or pyrolysis various phenolic compounds CO and/or CO2 may be evolved.**OTHER FLAMMABILITY INFORMATION:** None Known.**EXTINGUISHING MEDIA:** Foam, CO2, dry chemical.**PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:** Wear positive pressure self-contained breathing apparatus and full protective equipment.**6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)****PROTECT PEOPLE:** Keep unnecessary people away; isolate hazard area and deny unnecessary entry.**PROTECT THE ENVIRONMENT:** Keep spark producing equipment away. For large spills, evacuate upwind of spills and contain with dike. Keep out of sewers, storm drains, surface waters and soil.**CLEANUP:** Soak up in absorbent material such as sand and collect in suitable containers. Residual resin may be removed using steam or hot soapy water. Solvents are not recommended for cleanup unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent MSDS for handling information and exposure guidelines.**7. HANDLING AND STORAGE****HANDLING:** Practice caution and good personal cleanliness to avoid skin and eye contact. Avoid breathing vapors of heated material.**STORAGE:** See Dow bulletin entitled, "Dow Epoxy Resins Safe Handling and Storage Guide".**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****ENGINEERING CONTROLS:** Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may

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be necessary for some operations.

**PERSONAL PROTECTIVE EQUIPMENT****EYE/FACE PROTECTION:** Use safety glasses.**SKIN PROTECTION:** Use protective clothing impervious to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.**RESPIRATORY PROTECTION:** If respiratory irritation is experienced, use an approved air-purifying respirator.**EXPOSURE GUIDELINE(S):** NONE ESTABLISHED.**9. PHYSICAL AND CHEMICAL PROPERTIES****APPEARANCE:** Clear (light yellow) liquid.**ODOR:** Faint epoxy.**VAPOR PRESSURE:** 0.06 mm @ 70F\***VAPOR DENSITY:** Not applicable when flash point >250F**BOILING POINT:** >300F**SOLUBILITY IN WATER:** None**SPECIFIC GRAVITY:** 1.11-1.14

\*Based on alkyl glycidyl ether

**10. STABILITY AND REACTIVITY****CHEMICAL STABILITY:** Stable.**CONDITIONS TO AVOID:** Excessive heating over long periods of time degrades the resin. Freezing may cause a temporary haze to develop. Fire conditions increase viscosity and epoxide equivalent weight.**INCOMPATIBILITY WITH OTHER MATERIALS:** Base, acid, amines and oxidizing materials.**HAZARDOUS DECOMPOSITION PRODUCTS:** Refer to Section 5 for hazardous combustion products.**HAZARDOUS POLYMERIZATION:** Will not occur by itself, but masses of more than 1 pound of product plus an aliphatic amine will

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cause irreversible polymerization with considerable heat buildup.

**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:** The oral LD50 for rats is >2000 mg/kg.

**MUTAGENICITY:** In vivo mutagenicity tests for DGE8PA-based resins have been negative while in vitro assays have given mixed results. For aliphatic glycidyl ether: In vitro mutagenicity studies were negative in some cases and positive in other cases. Animal mutagenicity studies were negative.

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

**MOVEMENT & PARTITIONING:** Based largely or completely on information for D.E.R.\* 331. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5. Potential for mobility in soil is low (Koc between 500 and 2000).

**DEGRADATION & PERSISTENCE:** Based largely or completely on information for D.E.R.\* 331. Biodegradation reached in Modified Zahn-Wallens/EMPA Test (OECD Test No 302B) after 28 days: 12%.

**ECOTOXICOLOGY:** Based largely or completely on information for D.E.R.\* 331. Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in most sensitive species).

**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 responsibility solely of the waste generator.

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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 Customer Information Center at 800-258-2436 or 989-832-1556 for further details.

## 14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): This product is not regulated by D.O.T. when shipped domestically by land.

CANADIAN TDG INFORMATION: This product is not regulated by TDG when shipped domestically by land.

## 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

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

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## REGULATORY INFORMATION (CONTINUED)

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.

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey  
Pennsylvania

## OSHA HAZARD COMMUNICATION STANDARD:

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

## CANADIAN REGULATIONS

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

D2B - skin sensitizer

Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

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**REGULATORY INFORMATION (CONTINUED)**

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) 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)
Polymer of epichlorohydrin and bisphenol A	025085-99-8	83-98%
Alkyl glycidyl ether (C12-C14)	068609-97-2	2-17%

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):**

All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

**16. OTHER INFORMATION**

MSDS STATUS: Revised Section 15, Canadian Regulations.

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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.