



## D.E.R.™ 321

Liquid Epoxy Resin

### Description

D.E.R.™ 321 Liquid Epoxy Resin is a reaction product of epichlorohydrin and bisphenol A modified with an aromatic mono-functional reactive diluent.

### Introduction

D.E.R. 321 Liquid Epoxy Resin is ortho-cresyl glycidyl ether diluted standard bisphenol A based liquid epoxy resin, of extremely low viscosity. The low viscosity is advantageous in compounds containing large amounts of filler. D.E.R. 321 Resin has a cure rate similar to unmodified bisphenol A based liquid epoxy resins.

The reactive diluent contained in D.E.R. 321 Epoxy Resin limits somewhat the solvent resistance, however, an improved acid resistance can be observed using D.E.R. 321 Epoxy Resin in stead of D.E.R.™ 331™ Liquid Epoxy Resin. D.E.R. 321 Liquid Epoxy Resin exhibits a very low tendency to crystallize.

D.E.R. 321 Epoxy Resin can be hot or cold cured by blending with polyamine, polyamide and modified versions of these. Elevated temperature cures are necessary and post-cures required to develop full end properties if anhydride or catalytic curing agents are employed.

### Typical Applications

This product is suitable for use in applications such as:

- Adhesives
- Casting and Tooling
- Civil Engineering
- Composites
- Marine and Protective Coatings
- Potting and Encapsulation

### Typical Properties

Property <sup>(1)</sup>	Value	Method
Epoxide Equivalent Weight (g/eq)	180 – 188	ASTM D-1652
Epoxide Percentage (%)	22.9 – 23.9	ASTM D-1652
Epoxide Group Content (mmol/kg)	5320 – 5560	ASTM D-1652
Color (Gardner)	3 Max.	ASTM D-1544
Viscosity @ 25°C (mPa·s)	500 – 700	ASTM D-445
Density @ 25°C (g/ml)	1.14	ASTM D-4052
Flash Point (°C)	121	ASTM D-93
Shelf Life (Months)	24	

(1) Typical properties, not to be construed as specifications.

### Safety and Handling

The Dow Chemical Company provides its customers with a product specific Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) to cover potential health effects, safe handling, storage, use and disposal information. Dow strongly encourages its customers to review the MSDS or SDS on its products and other materials prior to their use.

**Safety and Handling**  
*(continued)*

D.E.R. 321™ Liquid Epoxy Resin is supplied in bulk, in 1000 kg intermediate bulk container or in 225 kg tight-head drums. The resin should be stored in dry place in its original closed packaging. D.E.R. 321 Epoxy Resin should retain its chemical properties for a period of at least 24 months.

For further handling information consult the Dow brochure entitled, *DOW Epoxy Resins Product Stewardship Manual, Safe Handling and Storage*, Form No. 296-00312 and the technical bulletin, *Product Coding, Shelf-life and Storage Stability*, Form no. 296-01657.

**Product Stewardship**

The Dow Chemical Company has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy by which we assess the health and environmental information on our products and then take the appropriate steps to protect employee and public health and the environment. The Dow Chemical Company has enduring commitments to Responsible Care® in the management of chemicals worldwide. Our Product Stewardship program rests with every individual involved with Dow products from the initial concept and research to the manufacture, sale, distribution, and disposal of each product.

**Customer Notice**

Dow encourages its customers and potential users of Dow products to review their applications for such products from the standpoint of human health and environmental quality. To help ensure that Dow products are not used in ways for which they were not intended or tested, Dow personnel are available to assist customers in dealing with ecological and product safety considerations. Your Dow sales representative can arrange for the proper contacts. Dow literature, including MSDS or SDS, should be consulted prior to the use of Dow products.

**Medical Application Policy**

Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- (a) permanent (long term) contact with internal body fluids or internal body tissues. Long term is a use which exceeds 72 continuous hours (except 30 days for PELLETHANE™ Polyurethane Elastomers);
- (b) use in cardiac prosthetic devices regardless of the length of time involved (cardiac prosthetic devices include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems and ventricular bypass assisted devices);
- (c) use as a critical component in medical devices that support or sustain human life; or
- (d) use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Additionally, all Products intended for use in pharmaceutical applications must pass the then current Pharmaceutical Liability Guidelines. For additional information please contact your regular Dow representative.

**Food Contact Statement**

This liquid epoxy resin will NOT comply with the U.S. Food, Drugs and Cosmetics Act as amended under Food Additive Regulation 21 CFR 175.300.

If your applications include food contact requirements, please contact your Dow representative for further information and forthcoming EC regulations.

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D.E.R. 321 Liquid Epoxy Resin

Form No. 296-01481-1207X-TD

## Regulatory Status

The aromatic epoxy resin part of this blend is regarded as a polymer according to the 6th Amendment of Council Directive 67/548/EEC and as a substance according to Council Directive 92/32/EEC of 30 April 1992; the 7th Amendment of that same directive. This substance has been reported to the EC Commission as No-Longer Polymer (NLP), is registered under NLP # 500-033-5, and is, therefore, exempt from the European Inventory of Existing Chemical Substances (EINECS). In addition, Dow confirms that the chemicals and intentional additives which form the basis of this product are listed on EINECS.

The reactive diluent utilized in this epoxy resin blend; ortho-cresyl glycidyl ether (CAS registration number 026447-14-3), is listed under number 247-711-4 on EINECS.

For more information on the regulatory status of this product, please refer to the MSDS or SDS for this product.

## Chemical Inventory Listing

CAS Number <sup>(1)</sup>		25085-99-8 (25068-38-6) / 26447-14-3
Europe	EINECS	NLP # 500-033-5 / 247-711-4
United States	TSCA	25085-99-8 / 26447-14-3
Canada	DSL	25085-99-8 / 26447-14-3
Australia	AICS	25085-99-8 / 26447-14-3
Japan	ENCS	7-1279 / 3-574
Korea	KECI	KE-24083 / KE-24798
Philippines	PICCS	25085-99-8 / 26447-14-3
China	SEPA	25085-99-8 / 26447-14-3

(1) Please refer to the MSDS or SDS for this product to ensure this CAS number is consistent with the product(s) you use.

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