

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier:**

**Product trade name:** ERISYS\* RDGE-H  
**Company product number:** RDGEH  
**REACH registration number:** 01-2120811573-60-0000  
**Substance name:** m-bis(2,3-epoxypropoxy)benzene  
**Substance identification number:** EC 202-987-5  
**Other means of identification:** Resorcinol diglycidyl ether; Diglycidyl resorcinol ether

**1.2. Relevant identified uses of the substance or mixture and uses advised against:**

**Uses:** Epoxy resin.  
**Uses advised against:** None identified

**1.3. Details of the supplier of the safety data sheet:**

**Manufacturer/Supplier:** CVC Thermoset Specialties  
844 N. Lenola Road  
Moorestown, New Jersey 08057  
United States  
Telephone: +1-856-533-3000  
FAX: +1-856-533-3003

**EU Only Representative:** Penman Consulting bvba  
Avenue des Arts 10  
B-1210 Brussels  
Belgium  
Telephone: +32 (0) 2 305 0698  
email: pcbvba09@penmanconsulting.com

**For further information about this SDS:** Email: CTS.info@emeraldmaterials.com

**1.4. Emergency telephone number:**

ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA);  
1-300-954-583 (Australia); 000-800-100-4086 (India).

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture:**

**Product classification according to Regulation (EC) 1272/2008 (CLP) as amended:**

Acute Toxicity, Oral, category 4 , H302  
Acute Toxicity, Dermal, category 4 , H312  
Skin Irritation, category 2, H315  
Skin Sensitizer, category 1, H317  
Eye Irritation, category 2, H319  
Germ Cell Mutagenicity, category 2, H341  
Carcinogenicity, category 2, H351  
STOT, repeated exposure, category 1, H372  
STOT, repeated exposure, category 2, H373  
Hazardous to the aquatic environment, Chronic, category 2, H411

**2.2. Label elements:**

**Product labeling according to Regulation (EC) 1272/2008 (CLP) as amended:**

**Hazard pictogram(s):**



**Signal word:**

Danger

**Hazard statements:**

- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H372 Causes damage to organs (blood) through prolonged or repeated exposure (dermal).
- H373 May cause damage to organs (forestomach) through prolonged or repeated exposure (oral).
- H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements:**

- P201 Obtain special instructions before use.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTRE/doctor if you feel unwell.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P391 Collect spillage.

**Supplemental information:** No Additional Information

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III and ECHA Guidance on Labelling and Packaging. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

**2.3. Other hazards:**

**PBT/vPvB criteria:** Not Available  
**Other hazards:** No Additional Information

See Section 11 for toxicological information.

**SECTION 3: Composition/information on ingredients**

**3.1. Substance:**

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Weight%</u>	<u>Classification</u>	<u>H Statements</u>
0000101-90-6	Resorcinol diglycidyl ether	99-100	Acute Tox. 4 Dermal- Acute Tox. 4 Oral- Aquatic Chronic 2- Carc. 2- Eye Irrit. 2- Muta. 2- Skin Irrit. 2- Skin Sens. 1- STOT RE 1	H302-312-315-317- 319-341-351-372-4 11
<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Weight%</u>	<u>REACH Registration No.</u>	<u>EC/List Number</u>
0000101-90-6	Resorcinol diglycidyl ether	99-100	01-2120811573-60-0000	202-987-5

See Section 16 for full text of H (Hazard) statements (EC 1272/2008).

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or

present at amounts below reportable limits.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures:

**General:** If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

**Eye contact:** Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion. If eye irritation persists: Get medical advice/attention.

**Skin contact:** Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

**Inhalation:** If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

**Protection of first aid responders:** Wear proper personal protective clothing and equipment.

### 4.2. Most important symptoms and effects, both acute and delayed:

Dizziness, Drowsiness, Headache, Irritation, Nausea. Preexisting sensitization, skin and/or respiratory disorders or diseases may be aggravated. See section 11 for additional information.

### 4.3. Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media:

**Suitable:** Use water spray, ABC dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures.

**Unsuitable:** None known.

### 5.2. Special hazards arising from the substance or mixture:

**Unusual fire/explosion hazards:** Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.

**Hazardous combustion products:** Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See section 10 (10.6 Hazardous decomposition products) for additional information.

### 5.3. Advice for firefighters:

Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures:

See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources. Personal Protective Equipment must be worn.

### 6.2. Environmental precautions:

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Do not flush liquid into public sewer, water systems or surface waters.

### 6.3. Methods and material for containment and cleaning up:

Contain by diking with sand, earth or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

### 6.4. References to other sections:

See Section 8 for recommendations on the use of personal protection and Section 13 for waste disposal.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling:

As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Do not get in eyes, on skin or clothing. Do not ingest, taste, or swallow. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid inhalation of aerosol, mist, spray, fume or vapor. Wash contaminated clothing before reuse. Discard shoes contaminated with this product. Provide eyewash fountains and safety showers in the work area.

### 7.2. Conditions for safe storage, including any incompatibilities:

Store cool and dry, under well-ventilated conditions. Keep away from heat, sparks and open flames. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning. Empty container contains residual product which may exhibit hazards of product.

### 7.3. Specific end use(s):

No Additional Information

## SECTION 8: Exposure controls / personal protection

### 8.1. Control parameters:

#### Occupational exposure limits (OEL):

<u>Chemical Name</u>	<u>EU OELV</u>	<u>EU IOELV</u>	<u>ACGIH - TWA/Ceiling</u>	<u>ACGIH - STEL</u>
Resorcinol diglycidyl ether	N/E	N/E	N/E	N/E
<u>Chemical Name</u>	<u>UK WEL</u>	<u>Ireland OEL</u>		
Resorcinol diglycidyl ether	N/E	N/E		

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

### 8.2. Exposure controls:

**Appropriate engineering controls:** Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS.

#### Individual protection measures, such as personal protective equipment:

**Eye/face protection:** Safety glasses or goggles required.

**Hand protection:** Avoid skin contact when mixing or handling the material by wearing impervious and chemical resistant gloves. In case of prolonged immersion or frequently repeated contact, gloves with breakthrough times greater than 480 minutes (protection class 6) are recommended. For brief contact or splash applications, gloves with breakthrough times of 60 minutes or greater are recommended (protection class 3 or greater). Suggested materials for protective gloves: Butyl rubber, Nitrile rubber, Neoprene. The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374. Suitability and durability of a glove is dependent on usage (e.g. frequency and duration of contact, other chemicals which may be handled, chemical resistance of glove material and dexterity). Always seek advice of the glove supplier as to the most suitable glove material.

**Skin and body protection:** Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

**Respiratory protection:** Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.

**Further information:** Eyewash fountains and safety showers are recommended in the work area.

**Environmental exposure controls:** See Sections 6 and 12.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties:

<b>Form:</b>	Liquid	<b>pH:</b>	Not Available
<b>Appearance:</b>	Clear to light yellow	<b>Relative density:</b>	1.21
<b>Odour:</b>	Very slight	<b>Partition coefficient (n-octanol/water):</b>	1.23 (calculated)
<b>Odour threshold:</b>	Not Available	<b>% Volatile by weight:</b>	Not Available
<b>Solubility in water:</b>	Negligible	<b>VOC:</b>	Not Available
<b>Evaporation rate:</b>	Not Available	<b>Boiling point °C:</b>	172 °C
<b>Vapour pressure:</b>	0.0059 Pa at 25 °C	<b>Boiling point °F:</b>	342 °F
<b>Vapour density:</b>	Heavier than air	<b>Flash point:</b>	199 °C (390 °F) Setflash (Closed Tester)
<b>Viscosity:</b>	200-325 cps @ 25°C	<b>Autoignition temperature:</b>	438 °C (820 °F)
<b>Melting point/Freezing point:</b>	Not Available	<b>Flammability (solid, gas):</b>	Not Applicable (liquid)
<b>Oxidising properties:</b>	Not oxidizing	<b>Flammability or explosive limits:</b>	LFL/LEL: Not Available
<b>Explosive properties:</b>	Not explosive		UFL/UEL: Not Available
<b>Decomposition temperature:</b>	Not Available		

### 9.2. Other information:

Amounts specified are typical and do not represent a specification.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity:

Exothermic reactions including polymerization may occur in contact with amines.

### 10.2. Chemical stability:

This product is stable.

### 10.3. Possibility of hazardous reactions:

Hazardous polymerization will not occur. This product will autopolymerize at very high temperatures.

### 10.4. Conditions to avoid:

Excessive heat and ignition sources.

### 10.5. Incompatible materials:

Avoid strong acids, bases, and oxidizing agents. Avoid contact with amines.

### 10.6. Hazardous decomposition products:

Thermal decomposition may produce smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects:

#### Information on likely routes of exposure:

**General:** Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize

exposure. Possible risk of irreversible effects. Overexposure may cause central nervous system depression.  
RESORCINOL DIGLYCIDYL ETHER: Possible cancer hazard - may cause cancer based on animal data.

**Eyes:** Causes serious eye irritation.

**Skin:** Harmful in contact with skin. May cause allergic skin reaction. Causes skin irritation.

**Inhalation:** May be harmful by inhalation. Inhalation of high vapor concentration may cause headache, drowsiness and irritation of the eyes and respiratory tract.

**Ingestion:** Harmful if swallowed. Ingestion may cause irritation.

**Acute toxicity information:** Harmful in contact with skin - Category 4. Harmful if swallowed - Category 4.

<u>Chemical Name</u>	<u>Inhalation LC50</u>	<u>Species</u>	<u>Oral LD50</u>	<u>Species</u>	<u>Dermal LD50</u>	<u>Species</u>
Resorcinol diglycidyl ether	N/E	N/E	980 mg/kg	Mouse	N/E	N/E

**Skin corrosion/irritation:** Causes skin irritation - Category 2.

<u>Chemical Name</u>	<u>Skin irritation</u>	<u>Species</u>
Resorcinol diglycidyl ether	Moderate irritant	Rabbit/500 mg

**Serious eye damage/irritation:** Causes serious eye irritation - Category 2.

<u>Chemical Name</u>	<u>Eye irritation</u>	<u>Species</u>
Resorcinol diglycidyl ether	Irritant	Rabbit/ adult

**Respiratory or skin sensitization:** Skin sensitization - Category 1.

<u>Chemical Name</u>	<u>Skin sensitisation</u>	<u>Species</u>
Resorcinol diglycidyl ether	Sensitizer	N/E

**Carcinogenicity:** Suspected of causing cancer - Category 2. RESORCINOL DIGLYCIDYL ETHER: During 2-year gavage studies, resorcinol diglycidyl ether caused hyperkeratosis and hyperplasia of the forestomach in rats and mice. Resorcinol diglycidyl ether was carcinogenic for rats and mice causing both benign and malignant neoplasms of the forestomach.

**Germ cell mutagenicity:** Suspected of causing genetic defects - Category 2. RESORCINOL DIGLYCIDYL ETHER: Mutagenicity was positive in in-vitro and some in-vivo genotoxicity assays.

**Reproductive toxicity:** Not classified (no relevant information found).

**Specific target organ toxicity (STOT) - single exposure:** Not classified (based on available data, the classification criteria are not met).

**Specific target organ toxicity (STOT) - repeated exposure:** Causes damage to organs through prolonged or repeated exposure - Category 1. RESORCINOL DIGLYCIDYL ETHER: Repeated dose toxicity study: LOAEL (Lowest-Observed-Adverse-Effect-Level), oral, rat, 2 years - 12 mg/kg bw/day (hyperkeratosis and hyperplasia of the forestomach); LOAEL, dermal, mouse, 2 years - 4.8 mg/kg bw/day (blood).

**Aspiration hazard:** Not classified (based on available data, the classification criteria are not met).

**Other toxicity information:** No additional information available.

## SECTION 12: Ecological information

### 12.1. Toxicity:

No ecological testing has been conducted on this product.

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
Resorcinol diglycidyl ether	Fish	LC50 5.8 mg/L (96 hours)	N/E	N/E
Resorcinol diglycidyl ether	Invertebrates	EC50 6.0 mg/L (48 hours)	N/E	N/E
Resorcinol diglycidyl ether	Algae	EC50 4.5 mg/L (72 hours)	N/E	NOEC 0.28 mg/L(72 hours)
Resorcinol diglycidyl ether	Micro-organisms	EC50 640 mg/L (3 hours)		

### 12.2. Persistence and degradability:

<u>Chemical Name</u>	<u>Biodegradation</u>
Resorcinol diglycidyl ether	Not readily biodegradable (OECD 301B)

### 12.3. Bioaccumulative potential:

<u>Chemical Name</u>	<u>Bioconcentration Factor (BCF)</u>	<u>Log Kow</u>
Resorcinol diglycidyl ether	N/E	1.46 (OECD 117)

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**12.4. Mobility in soil:**

**Chemical Name**  
Resorcinol diglycidyl ether

**Mobility in soil (Koc/Kow)**  
45.1 L/kg (OECD 121)

**12.5. Results of PBT and vPvB assessment:**

Not Available

**12.6. Other adverse effects:**

No additional information available.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods:**

Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

See Section 8 for recommendations on the use of personal protective equipment.

**SECTION 14: Transport information**

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

**14.1. UN number:** UN3082

**14.2. UN proper shipping name:**

Environmentally hazardous substance, liquid, n.o.s. (Resorcinol diglycidyl ether)

**14.3. Transport hazard class(es):**

**U.S. DOT hazard class:** N/A  
**Canada TDG hazard class:** N/A  
**Europe ADR/RID hazard class:** 9  
**IMDG Code (ocean) hazard class:** 9  
**ICAO/IATA (air) hazard class:** 9

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

**14.4. Packing group:** III

**14.5. Environmental hazards:**

**Marine pollutant:** Marine Pollutant (IMDG code 2.9.3).

**Hazardous substance (USA):** Not Applicable

**14.6. Special precautions for user:**

Not Applicable

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code:**

Not Applicable

**Notes:** For surface shipments within the United States: Not regulated.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**Europe REACH (EC) 1907/2006:** Applicable components are registered, exempt or otherwise compliant. REACH is only relevant to substances either manufactured or imported into the EU. Emerald Performance Materials has met its obligations under the REACH regulation. REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACH obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

**EU Authorizations and/or restrictions on use:** Not Applicable

**Other EU information:** No Additional Information

**National regulations:** No Additional Information

#### Chemical inventories:

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	Y
Japan Industrial Safety and Health Law (ISHL):	Y
Korean Existing and Evaluated Chemical Substances (KECL):	Y
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA) (Active):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory (or is not on the ACTIVE inventory for U.S. TSCA); 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

### 15.2. Chemical safety assessment:

Not Applicable

## SECTION 16: Other information

#### Hazard (H) Statements in the Composition section (Section 3):

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

**Reason for revision:** Changes in Section(s): 1, 3, 15

**Evaluation method for classification of mixtures:** Not Applicable (substance)

#### Legend:

\* : Trademark owned by Emerald Performance Materials, LLC.

ACGIH: American Conference of Governmental Industrial Hygienists

EU OELV: European Union Occupational Exposure Limit Value

EU IOELV: European Union Indicative Occupational Exposure Limit Value

N/A: Not Applicable

N/E: None Established

STEL: Short Term Exposure Limit

TWA: Time Weighted Average (exposure for 8-hour workday)



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**Users Responsibility/Disclaimer of Liability:**

The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

Safety Data Sheet Preparer:

Product Compliance Department

Emerald Performance Materials, LLC

1499 SE Tech Center Place, Suite 300

Vancouver, WA 98683

United States

<b>Annex</b>
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**Document in process**