

# SAFETY DATA SHEET

## 1. Identification

**Material name:** FLOWCOAT ESD NANO EPOXY HARDENER - PART B  
**Material:** 240 NT ESD B

### Recommended use and restriction on use

**Recommended use:** Curative  
**Restrictions on use:** Not known.

### Manufacturer/Importer/Supplier/Distributor Information

Key Resin Company  
4050 Clough Woods Drive  
Batavia OH 45103  
US

**Contact person:** EH&S Department  
**Telephone:** 513-943-4225  
**Emergency telephone number:** 1-800-424-9300 (US); 1-613-996-6666 (Canada)

## 2. Hazard(s) identification

### Hazard Classification

#### Health Hazards

Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation - vapor)	Category 4
Skin Corrosion/Irritation	Category 1
Serious Eye Damage/Eye Irritation	Category 1
Skin sensitizer	Category 1
Toxic to reproduction	Category 2

#### Unknown toxicity - Health

Acute toxicity, oral	15.16 %
Acute toxicity, dermal	15.16 %
Acute toxicity, inhalation, vapor	46.58 %
Acute toxicity, inhalation, dust or mist	23.78 %

#### Environmental Hazards

Acute hazards to the aquatic environment	Category 3
Chronic hazards to the aquatic environment	Category 3

#### Unknown toxicity - Environment

Acute hazards to the aquatic environment	0 %
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Chronic hazards to the aquatic environment 0 %

### Label Elements

#### Hazard Symbol:



**Signal Word:** Danger

**Hazard Statement:** Harmful if swallowed or if inhaled.  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.  
Suspected of damaging fertility or the unborn child.  
Harmful to aquatic life with long lasting effects.

#### Precautionary Statements

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection. Use personal protective equipment as required.

**Response:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/ physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instructions on this label). IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

**Hazard(s) not otherwise classified (HNOC):** None.

### 3. Composition/information on ingredients

## Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Benzyl alcohol	100-51-6	50 - <100%
Isophoronediamine	2855-13-2	10 - <25%
Modified cycloaliphatic amine	38294-64-3	10 - <20%
m-Xylenediamine	1477-55-0	5 - <10%
Hydroxybenzoic acid	69-72-7	0.1 - <1%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First-aid measures

### Description of necessary first-aid measures

<b>Inhalation:</b>	Move to fresh air.
<b>Skin Contact:</b>	Call a POISON CENTER/doctor if you feel unwell. Destroy or thoroughly clean contaminated shoes. Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention.
<b>Eye contact:</b>	Remove contact lenses, if present and easy to do. Continue rinsing. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.
<b>Ingestion:</b>	Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
<b>Personal Protection for First-aid Responders:</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### Most important symptoms/effects, acute and delayed

<b>Symptoms:</b>	Extreme irritation of eyes and mucous membranes, including burning and tearing.
<b>Hazards:</b>	No data available.

### Indication of immediate medical attention and special treatment needed

<b>Treatment:</b>	Symptoms may be delayed.
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## 5. Fire-fighting measures

<b>General Fire Hazards:</b>	No unusual fire or explosion hazards noted.
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### Suitable (and unsuitable) extinguishing media

<b>Suitable extinguishing media:</b>	Use fire-extinguishing media appropriate for surrounding materials.
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**Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical:** During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for fire-fighters**

**Special fire-fighting procedures:** No data available.

**Special protective equipment for fire-fighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:** See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.

**Accidental release measures:** In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

**Methods and material for containment and cleaning up:** Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

**Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

**7. Handling and storage**

**Handling**

**Technical measures (e.g. Local and general ventilation):** Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.

**Safe handling advice:** Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Do not taste or swallow. Do not get in eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Contact avoidance measures:** No data available.

**Hygiene measures:** Avoid contact with skin. Observe good industrial hygiene practices. Do not eat, drink or smoke when using the product. Wash hands after handling. Do not get in eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Contaminated work clothing should not be allowed out of the workplace.

**Storage**

**Safe storage conditions:** Store locked up.

**Safe packaging materials:** No data available.

**8. Exposure controls/personal protection**

**Control Parameters**

**Occupational Exposure Limits**

Chemical Identity	Type	Exposure Limit Values	Source
m-Xylenediamine	Ceiling	0.018 ppm	US. ACGIH Threshold Limit Values, as amended (01 2022)

Chemical name	Type	Exposure Limit Values	Source
m-Xylenediamine	CEILING	0.1 mg/m3	Canada. British Columbia OELs: Table of Exposure Limits for Chemical Biological Substances (Workers Compensation Board); as amended (07 2007)
m-Xylenediamine	CEV	0.1 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (01 2020)
m-Xylenediamine	CEILING	0.1 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety), as amended (03 2020)

**Appropriate Engineering Controls**

Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection:** Wear a full-face respirator, if needed. Wear safety glasses with side shields (or goggles) and a face shield.

**Skin Protection**

**Hand Protection:** Additional Information: Use suitable protective gloves if risk of skin contact.

**Skin and Body Protection:** Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information. Wear suitable protective clothing.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator. Seek advice from local supervisor.

**Hygiene measures:** Avoid contact with skin. Observe good industrial hygiene practices. Do not eat, drink or smoke when using the product. Wash hands after handling. Do not get in eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Contaminated work clothing should not be allowed out of the workplace.

**9. Physical and chemical properties**

## Appearance

<b>Physical state:</b>	liquid
<b>Form:</b>	liquid
<b>Color:</b>	Amber
<b>Odor:</b>	Mild pungent
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	No data available.
<b>Melting point/freezing point:</b>	No data available.
<b>Initial boiling point and boiling range:</b>	No data available.
<b>Flash Point:</b>	> 200 °C > 392 °F
<b>Evaporation rate:</b>	Slower than Ether
<b>Flammability (solid, gas):</b>	No
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper:</b>	No data available.
<b>Explosive limit - lower:</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	Vapors are heavier than air and may travel along the floor and in the bottom of containers.
<b>Relative density:</b>	1.008
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Insoluble in water
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.

## 10. Stability and reactivity

<b>Reactivity:</b>	No data available.
<b>Chemical Stability:</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions:</b>	No data available.
<b>Conditions to avoid:</b>	Avoid heat or contamination.
<b>Incompatible Materials:</b>	Strong acids.
<b>Hazardous Decomposition Products:</b>	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

## 11. Toxicological information

### Information on likely routes of exposure

000000033362

<b>Inhalation:</b>	In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.
<b>Skin Contact:</b>	Harmful in contact with skin. May cause an allergic skin reaction.
<b>Eye contact:</b>	Causes serious eye damage.
<b>Ingestion:</b>	Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics**

<b>Inhalation:</b>	No data available.
<b>Skin Contact:</b>	No data available.
<b>Eye contact:</b>	No data available.
<b>Ingestion:</b>	No data available.

**Information on toxicological effects**

**Acute toxicity (list all possible routes of exposure)**

<b>Oral</b>	
<b>Product:</b>	ATEmix: 1,028.21 mg/kg
<b>Dermal</b>	
<b>Product:</b>	ATEmix: 2,005.72 mg/kg
<b>Inhalation</b>	
<b>Product:</b>	ATEmix: 11 mg/l ATEmix : 5.96 mg/l

**Repeated dose toxicity**

**Product:** No data available.

**Skin Corrosion/Irritation**

**Product:** No data available.

**Specified substance(s):**

Benzyl alcohol in vivo (Rabbit): Slightly irritating

Modified cycloaliphatic amine In vitro (Human): Corrosive , 3 min

m-Xylenediamine in vivo (Mouse): Corrosive , 4 h

**Serious Eye Damage/Eye Irritation**

**Product:** No data available.

**Specified substance(s):**

Hydroxybenzoic acid      Rabbit: Highly irritating  
Rabbit: Highly irritating

**Respiratory or Skin Sensitization**

**Product:**      No data available.

**Carcinogenicity**

**Product:**      No data available.

**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**

No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended:**

No carcinogenic components identified

**Germ Cell Mutagenicity**

**In vitro**

**Product:**      No data available.

**In vivo**

**Product:**      No data available.

**Reproductive toxicity**

**Product:**      Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity - Single Exposure**

**Product:**      No data available.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:**      No data available.

**Aspiration Hazard**

**Product:**      No data available.

**Other effects:**      No data available.

**12. Ecological information**

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**



**Fish**

<b>Product:</b>	No data available.
<b>Specified substance(s):</b>	
Benzyl alcohol	LC 50 (Pimephales promelas, 96 h): 460 mg/l Experimental result, Key study
Isophoronediamine	LC 50 (Leuciscus idus, 96 h): 110 mg/l Experimental result, Key study
Modified cycloaliphatic amine	LL 50 (Oncorhynchus mykiss, 96 h): 70.7 mg/l Experimental result, Key study
m-Xylenediamine	LC 50 (Oryzias latipes, 96 h): 87.6 mg/l Experimental result, Key study
Hydroxybenzoic acid	LC 50 (Danio rerio, 48 h): 37 mg/l Experimental result, Not specified LC 50 (Pimephales promelas, 48 h): 1,591 mg/l Read-across from supporting substance (structural analogue or surrogate), Key study LC 50 (Pimephales promelas, 96 h): 1,370 mg/l Read-across from supporting substance (structural analogue or surrogate), Key study NOAEL (Danio rerio, 96 h): >= 100 mg/l Experimental result, Supporting study LC 50 (Pimephales promelas, 72 h): 1,501 mg/l Read-across from supporting substance (structural analogue or surrogate), Key study

**Aquatic Invertebrates**

<b>Product:</b>	No data available.
<b>Specified substance(s):</b>	
Benzyl alcohol	EC 50 (Daphnia magna, 48 h): 230 mg/l experimental result Experimental result, Key study
Isophoronediamine	EC 50 (Water flea (Daphnia magna), 24 h): 31.9 - 45.8 mg/l Intoxication EC 50 (Daphnia magna, 48 h): 23 mg/l experimental result Experimental result, Key study
Modified cycloaliphatic amine	EC 50 (Daphnia magna, 48 h): 11.1 mg/l experimental result Experimental result, Key study
m-Xylenediamine	EC 50 (Daphnia magna, 48 h): 15.2 mg/l experimental result Experimental result, Key study
Hydroxybenzoic acid	EC 50 (Daphnia magna, 48 h): 870 mg/l experimental result Experimental result, Key study

**Chronic hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

Benzyl alcohol NOAEL (Daphnia magna): 51 mg/l experimental result Experimental result, Key study

Isophoronediamine	NOAEL (Daphnia magna): 3 mg/l experimental result Experimental result, Key study
m-Xylenediamine	NOAEL (Daphnia magna): 4.7 mg/l experimental result Experimental result, Key study
Hydroxybenzoic acid	NOAEL (Daphnia magna): 10 mg/l experimental result Experimental result, Key study

**Toxicity to Aquatic Plants  
Product:**

No data available.

**Persistence and Degradability**

**Biodegradation**

**Product:** No data available.

**Specified substance(s):**

Benzyl alcohol 97 % (21 d) Detected in water. Experimental result, Key study

Isophoronediamine 8 % (28 d) Detected in water. Experimental result, Key study

Modified cycloaliphatic amine > 0 % (28 d) Detected in water. Experimental result, Key study

m-Xylenediamine 49 % (28 d) Detected in water. Experimental result, Key study

Hydroxybenzoic acid 100 % (14 d) Detected in water. Experimental result, Key study

**BOD/COD Ratio**

**Product:** No data available.

**Bioaccumulative potential**

**Bioconcentration Factor (BCF)**

**Product:** No data available.

**Specified substance(s):**

Modified cycloaliphatic amine Bioconcentration Factor (BCF): 5.13 Aquatic sediment QSAR, Key study

**Partition Coefficient n-octanol / water (log Kow)**

**Product:** No data available.

**Specified substance(s):**

Benzyl alcohol Log Kow: 1.10

Hydroxybenzoic acid Log Kow: 2.26  
Log Kow: -1 - 2.2 37 °C No Experimental result, Not specified  
Log Kow: 2.21 - 2.26 No Other, Key study  
Log Kow: 1.13 - 2.64 No No data, Supporting study

**Mobility in soil:**

No data available.

**Other adverse effects:** Harmful to aquatic life with long lasting effects.

### 13. Disposal considerations

**Disposal methods:** Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Contaminated Packaging:** No data available.

### 14. Transport information

**TDG:**

UN1760, CORROSIVE LIQUID, N.O.S. (Polyoxypropylene Diamine, Nonylphenol), 8, PG III

**CFR / DOT:**

UN1760, Corrosive liquids, n.o.s. (Polyoxypropylene Diamine, Nonylphenol), 8, PG III, MARINE POLLUTANT

**IMDG:**

UN1760, CORROSIVE LIQUID, N.O.S. (Polyoxypropylene Diamine, Nonylphenol), 8, PG III, MARINE POLLUTANT

**Further Information:**

The above shipping description may not be accurate for all container sizes and all modes of transportation. Please refer to Bill of Lading.

### 15. Regulatory information

**US Federal Regulations**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

None present or none present in regulated quantities.

**US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Proposed Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)**

None present or none present in regulated quantities.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended**

None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

**Chemical Identity**

Epichlorohydrin

**Reportable quantity**

100 lbs.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Immediate (Acute) Health Hazards  
Delayed (Chronic) Health Hazard  
Acute toxicity (any route or exposure)

Skin Corrosion or Irritation  
Serious eye damage or eye irritation  
Respiratory or Skin Sensitization  
Reproductive toxicity

**US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances**

Not Regulated.

**US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting**

Not Regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Epichlorohydrin	lbs

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

None present or none present in regulated quantities.

**US State Regulations**

**US. California Proposition 65**



**WARNING**

Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**International regulations**

**Montreal protocol**

Not applicable

**Stockholm convention**

Not applicable

**Rotterdam convention**

Not applicable

**Kyoto protocol**

Not applicable

**VOC:**

Regulatory VOC (less water and exempt solvent) : 538 g/l

VOC Method 310 : 53.42 %

**Inventory Status:**

Australia Industrial Chem. Act (AIC):	One or more components in this product are not listed on or exempt from the Inventory.
Canada DSL Inventory List:	All components in this product are listed on or exempt from the Inventory.
Canada NDSL Inventory:	One or more components in this product are not listed on or exempt from the Inventory.
Ontario Inventory:	One or more components in this product are not listed on or exempt from the Inventory.
China Inv. Existing Chemical Substances:	All components in this product are listed on or exempt from the Inventory.
Japan (ENCS) List:	One or more components in this product are not listed on or exempt from the Inventory.
Japan ISHL Listing:	One or more components in this product are not listed on or exempt from the Inventory.
Japan Pharmacopoeia Listing:	One or more components in this product are not listed on or exempt from the Inventory.
Korea Existing Chemicals Inv. (KECI):	All components in this product are listed on or exempt from the Inventory.
Mexico INSQ:	One or more components in this product are not listed on or exempt from the Inventory.
New Zealand Inventory of Chemicals:	All components in this product are listed on or exempt from the Inventory.
Philippines PICCS:	One or more components in this product are not listed on or exempt from the Inventory.
Taiwan Chemical Substance Inventory:	One or more components in this

product are not listed on or exempt from the Inventory.

US TSCA Inventory:

All components in this product are listed on or exempt from the Inventory.

Switzerland New Subs  
Notified/Registered:

One or more components in this product are not listed on or exempt from the Inventory.

Thailand DIW Existing Chemical Inv.  
List:

One or more components in this product are not listed on or exempt from the Inventory.

Vietnam National Chemical Inventory:

One or more components in this product are not listed on or exempt from the Inventory.

EC Inventory:

All components in this product are listed on or exempt from the Inventory.

#### 16. Other information, including date of preparation or last revision

**Revision Date:** 04/01/2024

**Version #:** 1.0

**Further Information:** No data available.

**Disclaimer:** For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.