



Material Safety Data Sheet

The Dow Chemical Company

Product Name: D.E.H.* 488 Epoxy Curing Agent

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The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

D.E.H.* 488 Epoxy Curing Agent

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
United States

Customer Information Number:

800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

989-636-4400

Local Emergency Contact:

989-636-4400

2. Hazards Identification

Emergency Overview

Color: Colorless

Physical State: Liquid.

Odor: Amine.

Hazards of product:

DANGER! Causes severe eye burns. Causes skin burns. Causes burns of the mouth and throat. May cause allergic skin reaction. Harmful if inhaled. May be harmful if absorbed through skin. May cause central nervous system effects. Evacuate area. Keep upwind of spill.

OSHA Hazard Communication Standard

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

Potential Health Effects

Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause lacrimation (tears).

Skin Contact: Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Skin Absorption: Prolonged or widespread skin contact may result in absorption of potentially harmful amounts.

Skin Sensitization: A component in this mixture has caused allergic skin reactions in humans. Contains component(s) which have caused allergic skin sensitization in guinea pigs.

Inhalation: Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Prolonged excessive exposure may cause serious adverse effects, even death.

Ingestion: Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Effects of Repeated Exposure: The data presented are for the following material: Salicylic acid. Kidney. The data presented are for the following material Benzyl alcohol. In animals, effects have been reported on the following organs after inhalation: Central nervous system. Muscles. Thymus. Urinary tract. Contains component(s) which have been reported to cause effects on the following organs in animals: Respiratory tract. Liver.

Birth Defects/Developmental Effects: The data presented are for the following material: Benzyl alcohol. Has been toxic to the fetus in laboratory animal tests. The data presented are for the following material Salicylic acid. Has caused birth defects in laboratory animals only at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Benzyl alcohol	100-51-6	> 25.0 - < 50.0 %
3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)	2855-13-2	> 25.0 - < 50.0 %
5-Amino-1,3,3-trimethylcyclohexanemethanamine reaction products with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]homopolymer	68609-08-5	>= 15.0 - <= 50.0 %
1,3-Benzenedimethanamine	1477-55-0	> 5.0 - < 10.0 %
Salicylic acid	69-72-7	> 5.0 - < 10.0 %

4. First-aid measures

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Seek medical attention if symptoms occur or irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures**Suitable extinguishing media**

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Collect in suitable and properly labeled containers. Absorb with materials such as: Sand. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Do not get in eyes, on skin, on clothing. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapor. Do not swallow. Avoid prolonged or repeated contact with skin. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Store in a cool, dry place.

Shelf life: Use within	Storage temperature:
12 Months	5 - 30 °C
	41 - 86 °F

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Benzyl alcohol	AIHA WEEL	TWA	44 mg/m ³ 10 ppm
1,3-Benzenedimethanamine	ACGIH	Ceiling	0.1 mg/m ³ SKIN

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Personal Protection

Eye/Face Protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements

or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance

Physical State	Liquid.
Color	Colorless
Odor	Amine.
Odor Threshold	No test data available
pH	8 - 11 <i>Calculated</i>
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	> 200 °C (> 392 °F) <i>Literature</i> .
Flash Point - Closed Cup	110 °C (230 °F) <i>Calculated</i>
Evaporation Rate (Butyl Acetate = 1)	no data available
Flammability (solid, gas)	No data available
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	< 5 hPa @ 50 °C <i>Literature</i>
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	1.05 <i>Calculated</i>
Solubility in water (by weight)	Soluble
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	No test data available
Decomposition Temperature	No test data available
Dynamic Viscosity	300 mPa.s @ 20 °C <i>Calculated</i>
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at typical use temperatures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Reaction with carbon dioxide may form an amine carbamate. Smoke may be generated depending on vapor pressure of mixture. Product absorbs carbon dioxide from the air.

Incompatible Materials: Avoid contact with oxidizing materials. Avoid contact with: Acids. Acrylates. Alcohols. Aldehydes. Halogenated hydrocarbons. Ketones. Nitrites. Avoid contact with metals such as: Brass. Bronze. Copper. Copper alloys. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Sawdust.

Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Ammonia. Ethylenediamine. Volatile amines.

11. Toxicological Information

Acute Toxicity

Ingestion

As product: Single dose oral LD50 has not been determined. LD50, Based on information for component(s): Estimated. rat 1,065 mg/kg

Dermal

As product: The dermal LD50 has not been determined.

Inhalation

As product: The LC50 has not been determined.

Eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause lacrimation (tears).

Skin corrosion/irritation

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Sensitization

Skin

A component in this mixture has caused allergic skin reactions in humans. Contains component(s) which have caused allergic skin sensitization in guinea pigs.

Respiratory

No relevant information found.

Repeated Dose Toxicity

The data presented are for the following material: Salicyclic acid. Kidney. The data presented are for the following material Benzyl alcohol. In animals, effects have been reported on the following organs after inhalation: Central nervous system. Muscles. Thymus. Urinary tract. Contains component(s) which have been reported to cause effects on the following organs in animals: Respiratory tract. Liver.

Chronic Toxicity and Carcinogenicity

The data presented are for the following material: Benzyl alcohol. Did not cause cancer in laboratory animals.

Developmental Toxicity

The data presented are for the following material: Benzyl alcohol. Has been toxic to the fetus in laboratory animal tests. The data presented are for the following material Salicyclic acid. Has caused birth defects in laboratory animals only at doses toxic to the mother. Contains component(s) which did not cause birth defects in laboratory animals.

Reproductive Toxicity

For the component(s) tested: No relevant data found.

Genetic Toxicology

The data presented are for the following material: Benzyl alcohol. In vitro genetic toxicity studies were negative in some cases and positive in other cases. Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

12. Ecological Information

Toxicity

Data for Component: **Benzyl alcohol**

|| Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

|| LC50, Pimephales promelas (fathead minnow), static, 96 h: 460 mg/l

Aquatic Invertebrate Acute Toxicity

|| EC50, Daphnia magna (Water flea), 48 h: 230 mg/l

Aquatic Plant Toxicity

|| EC50, Pseudokirchneriella subcapitata (green algae), static, Growth rate inhibition, 72 h: 770 mg/l

Toxicity to Micro-organisms

|| EC50, OECD 209 Test; activated sludge, Respiration inhibition, 49 h: 2,100 mg/l

Aquatic Invertebrates Chronic Toxicity Value

|| Daphnia magna (Water flea), semi-static test, 72 d, EC50, NOEC: 51 mg/l

Data for Component: **3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)**

|| Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

|| LC50, Leuciscus idus (Golden orfe), semi-static test, 96 h: 110 mg/l

Aquatic Invertebrate Acute Toxicity

|| EC50, Daphnia magna (Water flea), static, 48 h, immobilization: 23 mg/l

Aquatic Plant Toxicity

|| EbC50, alga Scenedesmus sp., biomass growth inhibition, 72 h: 37 mg/l

Toxicity to Micro-organisms

|| EC10; Bacteria, 18 h: 1,120 mg/l

Aquatic Invertebrates Chronic Toxicity Value

|| Daphnia magna (Water flea), 21 d, number of offspring, NOEC: 3 mg/l, LOEC: 10 mg/l

Data for Component: **5-Amino-1,3,3-trimethylcyclohexanemethanamine reaction products with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]homopolymer**

|| Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

|| LL50, rainbow trout (Oncorhynchus mykiss), static test, 96 h: 70.7 mg/l

Aquatic Invertebrate Acute Toxicity

|| EL50, water flea Daphnia magna, static test, 48 h, immobilization: 11.1 mg/l

Aquatic Plant Toxicity

|| EL50, Pseudokirchneriella subcapitata (green algae), static test, Growth inhibition (cell density reduction), 72 h: 79.4 mg/l

Toxicity to Micro-organisms

|| EC50, activated sludge test (OECD 209); activated sludge, aerobic, 3 h: > 1,000 mg/l

Data for Component: **1,3-Benzenedimethanamine**

|| Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

|| LC50, Leuciscus idus (Golden orfe), 96 h: 75 mg/l

Aquatic Invertebrate Acute Toxicity

|| EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: 15.2 mg/l

Aquatic Plant Toxicity

|| EC50, alga Scenedesmus sp., static test, biomass growth inhibition, 72 h: 12 mg/l

Data for Component: **Salicylic acid**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, emerald shiner (*Notropis atherinoides*), 96 h: > 150 mg/l

LC50, *Leuciscus idus* (Golden orfe), static test, 48 h: 90 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, *Daphnia magna* (Water flea), 24 h, lethality: 105 - 230 mg/l

Toxicity to Micro-organisms

EC50, activated sludge test (OECD 209), Respiration inhibition, 3 h: > 3,200 mg/l

Persistence and Degradability

Data for Component: **Benzyl alcohol**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
92 - 96 %	14 d	OECD 301C Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
8.25E-12 cm ³ /s	1.296 d	Estimated.

Theoretical Oxygen Demand: 2.52 mg/mg

Data for Component: **3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)**

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
8 %	28 d	OECD 301A Test	fail
42 %	3 h	OECD 303A Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
8.472E-11 cm ³ /s	0.126 d	Estimated.

Theoretical Oxygen Demand: 3.38 mg/mg

Data for Component: **5-Amino-1,3,3-trimethylcyclohexanemethanamine reaction products with 2,2'-(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]homopolymer**

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
0 %	28 d	OECD 301F Test	fail

Data for Component: **1,3-Benzenedimethanamine**

Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
49 %	28 d	OECD 301B Test	fail
22 %	28 d	OECD 302C Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
7.141E-11 cm ³ /s	0.15 d	Estimated.

Theoretical Oxygen Demand: 3.17 mg/mg

Data for Component: **Salicylic acid**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
88.1 %	14 d	OECD 301C Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.300E-11 cm ³ /s	0.823 d	Estimated.

Theoretical Oxygen Demand: 1.62 mg/mg

Bioaccumulative potentialData for Component: **Benzyl alcohol**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 1.10 Measured

Data for Component: **3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 0.79 Measured

Data for Component: **5-Amino-1,3,3-trimethylcyclohexanemethanamine reaction products with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]homopolymer**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 3.6

Data for Component: **1,3-Benzenedimethanamine**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 0.18 Shake flask (OECD 107 Test)

Bioconcentration Factor (BCF): < 3; Cyprinus carpio (Carp); Measured

Data for Component: **Salicylic acid**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 2.26 Measured

Mobility in soilData for Component: **Benzyl alcohol**

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 16 Estimated.

Henry's Law Constant (H): 3.37E-07 atm*m³/mole; 25 °C Measured

Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
0.60 %	98.28 %	< 0.01 %	1.10 %	0.02 %

Data for Component: **3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)**

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 340 Estimated.

Henry's Law Constant (H): 3.36E-09 atm*m³/mole; 25 °C Estimated.

Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
0.01 %	99.89 %	< 0.01 %	0.05 %	0.04 %

Data for Component: **5-Amino-1,3,3-trimethylcyclohexanemethanamine reaction products with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]homopolymer**

Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient, soil organic carbon/water (Koc): > 5,000 OECD 121: HPLC Method

Data for Component: **1,3-Benzenedimethanamine**

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 910 Estimated.

Henry's Law Constant (H): 6.94E-11 atm*m³/mole; 25 °C Estimated.

Data for Component: Salicylic acid

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 24 Estimated.

Henry's Law Constant (H): 7.34E-09 atm*m3/mole; 25 °C

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices 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. AS YOUR SUPPLIER, WE HAVE 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: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. Transport Information

DOT Non-Bulk

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S.

Technical Name: Isophoronediamine, 1,3-Benzenedimethanamine

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG III

DOT Bulk

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S.

Technical Name: Isophoronediamine, 1,3-Benzenedimethanamine

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG III

IMDG

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S.

Technical Name: Isophoronediamine, 1,3-Benzenedimethanamine

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG III

EMS Number: F-A,S-B

Marine pollutant: No

ICAO/IATA

Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S.

Technical Name: Isophoronediamine, 1,3-Benzenedimethanamine

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG III

Cargo Packing Instruction: 856

Passenger Packing Instruction: 852

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Component	CAS #	Amount
Benzyl alcohol	100-51-6	> 25.0 - < 50.0 %
1,3-Benzenedimethanamine	1477-55-0	> 5.0 - < 10.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	3	1	0

Recommended Uses and Restrictions

Identified uses

Used in applications such as: Curing agent.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

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