

Material Safety Data Sheet



Date of issue 27 June 2018

Version 18

1. Product and company identification

Product name : 2.1 EPOXY HARDENER
Code : ESU479
Manufacturer / Supplier : PPG Industries, Inc.
One PPG Place,
Pittsburgh, PA 15272
Emergency telephone number : (412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
01-800-00-21-400 or + 52 55 5559 1588 (Mexico)
Technical Phone Number : 1-800-647-6050

2. Hazards identification

Emergency overview : DANGER!
FLAMMABLE LIQUID AND VAPOR. CAUSES EYE AND SKIN BURNS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. ASPIRATION HAZARD. CAN ENTER LUNGS AND CAUSE DAMAGE. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Keep away from flames, such as a pilot light, and any object that sparks, such as an electric motor. Keep away from heat. Do not smoke. Do not swallow. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Potential acute health effects

Inhalation : May be harmful if inhaled. Irritating to respiratory system. Can irritate eyes, nose, mouth and throat. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion : May be harmful if swallowed. May cause burns to mouth, throat and stomach. Aspiration hazard if swallowed. Can enter lungs and cause damage.
Skin : Corrosive to the skin. Causes burns. Harmful in contact with skin. May cause an allergic skin reaction.
Eyes : Corrosive to eyes. Causes burns.

Over-exposure signs/symptoms

Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone.

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

This Material Safety Data Sheet has been prepared in accordance with Canada's Workplace Hazardous Materials Information System (WHMIS). (1988 Version)

See toxicological information (Section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>% (w/w)</u>
4-chloro- α,α,α -trifluorotoluene	98-56-6	10 - 30
xylene	1330-20-7	10 - 30
docusate sodium	577-11-7	5 - 10
butan-1-ol	71-36-3	3 - 7
Naphtha (petroleum), heavy alkylate	64741-65-7	1 - 5
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	1 - 5
Isopropyl alcohol	67-63-0	1 - 5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Material Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting measures

- Flammability of the product** : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Hazardous combustion products** : Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
sulfur oxides
halogenated compounds
carbonyl halides
metal oxide/oxides

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Use spark-proof tools and explosion-proof equipment. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not swallow. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. Vapors are heavier than air and may spread along floors. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. If this material is part of a multiple component system, read the Material Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.
- Storage** : Do not store above the following temperature: 35°C (95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Name	Result	ACGIH	Ontario	Mexico	PPG
4-chloro- α,α,α -trifluorotoluene	TWA	Not established	Not established	Not established	25 ppm
xylene	TWA STEL	100 ppm 150 ppm	100 ppm 150 ppm	100 ppm 150 ppm	Not established Not established
butan-1-ol	TWA	20 ppm	20 ppm	20 ppm S	Not established
Isopropyl alcohol	TWA STEL	200 ppm 400 ppm	200 ppm 400 ppm	200 ppm 400 ppm	Not established Not established

Key to abbreviations

A = Acceptable Maximum Peak
 ACGIH = American Conference of Governmental Industrial Hygienists.
 C = Ceiling Limit
 F = Fume
 IPEL = Internal Permissible Exposure Limit
 R = Respirable
 S = Potential skin absorption

SR = Respiratory sensitization
 SS = Skin sensitization
 STEL = Short term Exposure limit values
 TD = Total dust
 TLV = Threshold Limit Value
 TWA = Time Weighted Average

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes : Chemical splash goggles and face shield.
Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Gloves : Nitrile, neoprene
Respiratory : If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8 . Exposure controls/personal protection

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Closed cup: 23.89°C (75°F)
- Explosion limits** : Lower: 1.1%
- Color** : Not available.
- Odor** : Not available.
- pH** : Not available.
- Boiling/condensation point** : >37.78°C (>100°F)
- Melting/freezing point** : Not available.
- Specific gravity** : 1.04
- Density (lbs / gal)** : 8.68
- Vapor pressure** : 1 kPa (7.8 mm Hg) [room temperature]
- Vapor density** : Not available.
- Volatility** : 52% (v/v), 51.76% (w/w)
- Evaporation rate** : 0.35 (butyl acetate = 1)
- Solubility** : Insoluble in the following materials: cold water.
- Partition coefficient: n-octanol/water** : Not available.
- % Solid. (w/w)** : 48.24

10 . Stability and reactivity

- Stability** : Stable under recommended storage and handling conditions (see Section 7).
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Materials to avoid** : Reactive or incompatible with the following materials: acids, oxidizing materials, strong alkalis
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

11 . Toxicological information

Acute toxicity

Product name 2.1 EPOXY HARDENER

11 . Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
4-chloro- α,α,α -trifluorotoluene	LD50 Oral	Rat	13 g/kg	-
	LD50 Dermal	Rabbit	>2.7 g/kg	-
	LC50 Inhalation Vapor	Rat	33080 mg/m ³	4 hours
xylene	LD50 Oral	Rat	4.3 g/kg	-
	LD50 Dermal	Rabbit	>1.7 g/kg	-
docusate sodium	LD50 Oral	Rat	1900 mg/kg	-
	LD50 Dermal	Rabbit	>10 g/kg	-
butan-1-ol	LD50 Oral	Rat	0.79 g/kg	-
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours
2,4,6-tris(dimethylaminomethyl)phenol	LD50 Oral	Rat	1200 mg/kg	-
	LD50 Dermal	Rabbit	1.28 g/kg	-
Isopropyl alcohol	LD50 Oral	Rat	4.396 g/kg	-
	LD50 Dermal	Rabbit	12800 mg/kg	-
	LC50 Inhalation Vapor	Rat	72600 mg/m ³	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Defatting irritant

: Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Target organs

: Contains material which causes damage to the following organs: brain, central nervous system (CNS).

Contains material which may cause damage to the following organs: blood, kidneys, lungs, the nervous system, liver, spleen, upper respiratory tract, skin, ears, eye, lens or cornea.

Carcinogenicity**Classification**

Product/ingredient name	ACGIH	IARC	NTP
xylene	A4	3	-
Isopropyl alcohol	A4	3	-

Carcinogen Classification code:

ACGIH: A1, A2, A3, A4, A5

IARC: 1, 2A, 2B, 3, 4

NTP: Known to be a human carcinogen; Reasonably anticipated to be a human carcinogen

Not listed or regulated as a carcinogen: -

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
docusate sodium	Acute LC50 36 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 37 mg/l	Fish - Lepomis macrochirus	96 hours
Isopropyl alcohol	Acute EC50 10100 mg/l Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

14. Transport information

	TDG	Mexico	IMDG
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class(es)	3	3	3
Packing group	III	III	III
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

Additional information

TDG : None identified.
Mexico : None identified.
IMDG : None identified.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Proof of classification statement : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).

15 . Regulatory information

Canada inventory (DSL) : All components are listed or exempted.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). Class E: Corrosive liquid. Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

Mexico

Classification

Flammability : 3 Health : 3 Reactivity : 0

16 . Other information

Hazardous Material Information System (U.S.A.)

Health : 3 * Flammability : 3 Physical hazards : 0

(*) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Health : 3 Flammability : 3 Instability : 0

Date of previous issue : 10/13/2017

Organization that prepared : EHS

the MSDS

✔ Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.