


Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

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

1.1 Product identifier

Product name : HEMPADUR ZINC 17349
 Product identity : 1734919830
 Product type : epoxy zinc primer (base for multi-component product)

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

Field of application : metal industry, ships and shipyards.
 Ready-for-use mixture : 17340 = 17349 4 vol. / 97040 1 vol.
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details : HEMPEL (USA), Inc.
 600 Conroe Park North Drive
 Conroe, Texas 77303
 Toll free: (800) 678-6641,
 if outside area codes 713, 281, 409, 936
 Regular phone number: (936) 523-6000
 E-mail Hempel@Hempel.com

1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887**
 (24 hours)
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.
 For all other information : In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 (8 AM - 5 PM CST) See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 GHS Classification : FLAMMABLE LIQUIDS - Category 3
 SKIN IRRITATION - Category 2
 SERIOUS EYE DAMAGE - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs and lungs) - Category 1

2.2 Label elements

Hazard pictograms :



SECTION 2: Hazards identification

Signal word :	Danger
Hazard statements :	H226 - Flammable liquid and vapor. H318 - Causes serious eye damage. H315 - Causes skin irritation. H317 - May cause an allergic skin reaction. H351 - Suspected of causing cancer. H372 - Causes damage to organs through prolonged or repeated exposure. (hearing organs, lungs)
Precautionary statements :	
Prevention :	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
Response :	Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage :	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal :	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements :	None known.

2.3 Other hazards

Hazards not otherwise classified : None known.

SECTION 3: Composition/information on ingredients

Product definition : Mixture
Physical state : Liquid.

Product/ingredient name	Identifiers	%	GHS Classification
zinc powder - zinc dust (stabilized) xylene	7440-66-6 1330-20-7	≥50 - ≤75 ≥5 - ≤10	Not classified. FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	25068-38-6	≥3 - ≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
zinc oxide n-butanol	1314-13-2 71-36-3	≥3 - ≤5 ≥3 - ≤5	Not classified. FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
formaldehyde, polymer with (chloromethyl) oxirane and phenol ethylbenzene	9003-36-5 100-41-4	≥1 - ≤3 ≥1 - ≤3	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1 FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 ASPIRATION HAZARD - Category 1
(C12-C14) Alkylglycidylether	68609-97-2	≥1 - ≤3	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1
Iron oxide (Fe2O3)	1309-37-1	≥1 - ≤3	Not classified.

SECTION 3: Composition/information on ingredients

solvent naphtha (petroleum), light arom.	64742-95-6	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
middle molecular epoxy resin MMW 700-1200	*25068-38-6	<1	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
respirable quartz	14808-60-7	<1	CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (lungs) (inhalation) - Category 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

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.

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If unconscious, place in recovery position and seek medical advice.
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.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes skin irritation. May cause an allergic skin reaction.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains

SECTION 4: First aid measures

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Not applicable.
Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : Recommended: Approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone.
NOT TO BE USED: WATER. Risk of formation of very flammable and explosive vapours.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

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. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not use water. Violent reaction may occur. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 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). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. 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). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used. Contains epoxy constituents. Avoid all possible skin contact with epoxy and amine containing products, they may cause allergic reactions. Open with care, danger of overpressure. Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations for flammable liquids. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids as well as of amines, alcohols and water. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions. This product may be applied using several application techniques and methods of handling may be different for each. Application techniques include [but are not limited to] brushing, rolling, and spray application [conventional, HPLV, airless, pleural component or aerosol can]. Avoid the breathing of vapors and, if spraying, do not breath spray mist or aerosols.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
xylene	<p>ACGIH TLV (United States, 3/2016). STEL: 651 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 434 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p>
zinc oxide	<p>NIOSH REL (United States, 10/2013). CEIL: 15 mg/m³ Form: Dust TWA: 5 mg/m³ 10 hours. Form: Dust and fumes STEL: 10 mg/m³ 15 minutes. Form: Fume</p> <p>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Fume TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States, 3/2016). STEL: 10 mg/m³ 15 minutes. Form: Respirable fraction TWA: 2 mg/m³ 8 hours. Form: Respirable fraction</p>
n-butanol	<p>ACGIH TLV (United States, 3/2016). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2013). Absorbed through skin. CEIL: 150 mg/m³ CEIL: 50 ppm</p> <p>OSHA PEL (United States, 2/2013). TWA: 300 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p>
ethylbenzene	<p>ACGIH TLV (United States, 3/2016). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2013). STEL: 545 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 435 mg/m³ 8 hours.</p>

SECTION 8: Exposure controls/personal protection

Iron oxide (Fe ₂ O ₃)	TWA: 100 ppm 8 hours.
solvent naphtha (petroleum), light arom.	<p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³, (as Fe) 10 hours. Form: Dust and fumes</p> <p>ACGIH TLV (United States, 3/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>OSHA PEL (United States, 2/2013). TWA: 10 mg/m³ 8 hours.</p>
respirable quartz	<p>ACGIH TLV (United States). TWA Tentative: 25 ppm 8 hours.</p> <p>OSHA PEL Z3 (United States, 2/2013). TWA: 250 mppcf / (%SiO₂+5) 8 hours. Form: Respirable TWA: 10 mg/m³ / (%SiO₂+2) 8 hours. Form: Respirable</p> <p>ACGIH TLV (United States, 3/2016). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p>

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.

8.2 Exposure controls

Appropriate engineering controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.

Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

- General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Hand protection : Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:

Recommended: Silver Shield / 4H gloves, polyvinyl alcohol (PVA), Viton®
May be used: nitrile rubber, butyl rubber
Short term exposure: neoprene rubber, natural rubber (latex), polyvinyl chloride (PVC)
- Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.
Wear suitable protective clothing. Always wear protective clothing when spraying.

SECTION 8: Exposure controls/personal protection

Respiratory protection : If working areas have insufficient ventilation, wear half or totally covering mask equipped with gas filter of type Organic Vapor, when grinding use particle filter of type P95, P99 or P100. When spraying use a combined filter (organic vapor / HEPA or organic vapor / P100 type). Be sure to use approved/certified respirator or equivalent. Always wear an air-fed respirator when spraying in a continuous and prolonged work situation (e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter).

Protective clothing (pictograms) :



Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Liquid.

Odor : Solvent-like

pH : Testing not relevant or not possible due to nature of the product.

Melting point/freezing point : 419.85°C This is based on data for the following ingredient: Zinc

Boiling point/boiling range : Testing not relevant or not possible due to nature of the product.

Flash point : Closed cup: 30°C (86°F)

Evaporation rate : Testing not relevant or not possible due to nature of the product.

Flammability : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

Upper/lower flammability or explosive limits : 0.8 - 11.3 vol %

Vapor pressure : Testing not relevant or not possible due to nature of the product.

Vapor density : Testing not relevant or not possible due to nature of the product.

Relative density : 2.632 g/cm³

Solubility(ies) : Partially soluble in the following materials: cold water and hot water.

Partition coefficient (LogKow) : Testing not relevant or not possible due to nature of the product.

Auto-ignition temperature : Testing not relevant or not possible due to nature of the product.

Decomposition temperature : Testing not relevant or not possible due to nature of the product.

Viscosity : Testing not relevant or not possible due to nature of the product.

Explosive properties : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Slightly explosive in the presence of the following materials or conditions: moisture.

Oxidizing properties : Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)): 12 % (w/w)

Water % by weight : Weighted average: 0 %

VOC content (Coatings) : 2.64 lbs/gal (316.1 g/l)

VOC content (Regulatory) : 2.64 lbs/gal (316.1 g/l)

TOC Content (Volatile) : Weighted average: 257 g/l

Solvent Gas : Weighted average: 0.078 m³/l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 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.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials and acids.
Reactive or incompatible with the following materials: reducing materials, organic materials, alkalis and moisture.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Epoxy and amine containing products can cause skin disorders such as allergic eczema. The allergy may arise after only a short exposure period.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
zinc powder - zinc dust (stabilized)	LC50 Inhalation Dusts and mists	Rat	5.41 mg/l	4 hours
	LD50 Oral	Rat	>2000 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
zinc oxide	LD50 Oral	Rat	>2000 mg/kg	-
	LC50 Inhalation Vapor	Rat	>5.7 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
n-butanol	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
formaldehyde, polymer with (chloromethyl)oxirane and phenol	LD50 Oral	Rat	790 mg/kg	-
	LD50 Dermal	Rabbit	>2000 mg/kg	-
ethylbenzene	LD50 Oral	Rat	>2000 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
(C12-C14) Alkylglycidylether	LD50 Oral	Rat	3500 mg/kg	-
	LD50 Dermal	Rat	>4500 mg/kg	-
solvent naphtha (petroleum), light arom.	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	6193 mg/m ³	4 hours

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middle molecular epoxy resin MMW 700-1200	LD50 Dermal	Rabbit	3160 mg/kg	-
	LD50 Oral	Rat	3492 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-

Acute toxicity estimates

Route	ATE value
Oral	26935.2 mg/kg
Dermal	25520.9 mg/kg
Inhalation (gases)	117155.5 ppm
Inhalation (vapors)	262.9 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
zinc powder - zinc dust (stabilized) xylene	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Eyes - Mild irritant	Rabbit	-	-
zinc oxide	Skin - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
n-butanol	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams
formaldehyde, polymer with (chloromethyl)oxirane and phenol ethylbenzene	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters
(C12-C14) Alkylglycidylether	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-
solvent naphtha (petroleum), light arom.	Skin - Moderate irritant	Rabbit	-	24 hours 500 microliters
	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters
	Respiratory - Mild irritant	Rabbit	-	-

Sensitizer

Product/ingredient name	Route of exposure	Species	Result
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	skin	Guinea pig	Sensitizing
(C12-C14) Alkylglycidylether	skin	Guinea pig	Sensitizing
middle molecular epoxy resin MMW 700-1200	skin	Guinea pig	Sensitizing

Carcinogen Classification

Product/ingredient name	IARC	NTP	OSHA
xylene	3	-	-
ethylbenzene	2B	-	-
Iron oxide (Fe2O3)	3	-	-
respirable quartz	1	Known to be a human carcinogen.	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
n-butanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
solvent naphtha (petroleum), light arom.	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

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Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene respirable quartz	Category 2 Category 1	Not determined Inhalation	hearing organs lungs

Aspiration hazard

Product/ingredient name	Result
ethylbenzene solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization : Contains bisphenol A-(epichlorhydrin) epoxy resin MW =< 700, formaldehyde, polymer with (chloromethyl)oxirane and phenol, (C12-C14) Alkylglycidylether, middle molecular epoxy resin MMW 700-1200. May produce an allergic reaction.

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Very toxic to aquatic life with long lasting effects.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

Product/ingredient name	Result	Species	Exposure
zinc powder - zinc dust (stabilized)	Acute EC50 0.3 mg/l Marine water	Algae	72 hours
	Acute EC50 0.354 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 0.238 - 0.269 mg/l Fresh water	Fish	96 hours
	Chronic EC10 27.3 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
		- Exponential growth phase	
	Chronic EC10 59.2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Chronic NOEC 178 µg/l Marine water	Crustaceans - Palaemon elegans	21 days
	Chronic NOEC 2.6 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks
	Acute EC50 >11 mg/l	Algae	72 hours
	Acute EC50 1.4 - 1.7 mg/l	Daphnia - Daphnia magna	48 hours
zinc oxide	Acute LC50 3.1 mg/l	Fish - fathead minnow (Pimephales promelas)	96 hours
	Acute EC50 0.042 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute LC50 98 µg/l Fresh water	- Exponential growth phase	
	Acute LC50 1.1 - 2.5 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
n-butanol	Chronic NOEC 0.017 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 1328 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute LC50 1.376 mg/l	- Exponential growth phase	
formaldehyde, polymer with (chloromethyl)oxirane and phenol	Acute EC50 2.54 mg/l	Daphnia	96 hours
		Fish	96 hours
ethylbenzene (C12-C14) Alkylglycidylether	Acute EC50 2.54 mg/l	Fish	96 hours
	Acute LC50 1.8 mg/l	Algae	72 hours
	Acute LC50 2.55 mg/l	Daphnia	48 hours
	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute IC50 843.75 mg/l	Algae	72 hours
solvent naphtha (petroleum), light arom.	Acute LC50 5000 mg/l	Fish	96 hours
	Acute EC50 2.6 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	96 hours
	Acute EC50 6.14 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 9.22 mg/l	Fish - Oncorhynchus mykiss (rainbow trout)	96 hours
		Daphnia	48 hours
middle molecular epoxy resin MMW	Acute EC50 >100 mg/l	Daphnia	48 hours

SECTION 12: Ecological information

700-1200	Acute LC50 >100 mg/l	Fish	96 hours
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12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
xylene	-	>60 % - Readily - 28 days	-	-
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	OECD 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test	12 % - Not readily - 28 days	-	-
n-butanol	OECD 301D Ready Biodegradability - Closed Bottle Test	92 % - 20 days	-	-
formaldehyde, polymer with (chloromethyl)oxirane and phenol	OECD 301B Ready Biodegradability - CO ₂ Evolution Test	16 % - Not readily - 28 days	-	-
ethylbenzene	-	>70 % - Readily - 28 days	-	-
(C12-C14) Alkylglycidylether	-	87 % - Readily - 28 days	-	-
solvent naphtha (petroleum), light arom.	-	>70 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	-	-	Not readily
n-butanol	-	-	Readily
formaldehyde, polymer with (chloromethyl)oxirane and phenol	-	-	Not readily
ethylbenzene	-	-	Readily
(C12-C14) Alkylglycidylether	-	-	Readily
solvent naphtha (petroleum), light arom.	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 - 25.9	low
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	2.64 - 3.78	31	low
zinc oxide	2.2	60960	high
n-butanol	1	3.16	low
formaldehyde, polymer with (chloromethyl)oxirane and phenol	2.7	-	low
ethylbenzene	3.6	-	low
(C12-C14) Alkylglycidylether	3.77	160 - 263	low
solvent naphtha (petroleum), light arom.	-	10 - 2500	high
middle molecular epoxy resin MMW 700-1200	2.64 - 3.78	31	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}): No known data available in our database.

Mobility:

No known data available in our database.

12.5 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.








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.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Xylene 1-Butanol (I); n-Butyl alcohol (I)	1330-20-7 71-36-3	Listed Listed	U239 U031

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	14.5 Additional information
DOT Code	UN1263	PAINT. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	3 -  	III	Yes.	ERG : 128 The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes. Reportable quantity (Zinc, zinc powder - zinc dust (stabilized)) 1658.3 lbs / 752.87 kg [75.565 gal / 286.05 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Code	UN1263	PAINT. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	3 -  	III	Yes.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.
SCT Code	UN1263	PAINT	3 - 	III	No.	-
IMDG Code	UN1263	PAINT. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	3 -  	III	Yes.	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-E, S-E

SECTION 14: Transport information

IATA Code	UN1263 PAINT	3		III No.	The environmentally hazardous substance mark may appear if required by other transportation regulations.
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Code : Classification
 PG* : Packing group
 Env.* : Environmental hazards

14.6 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.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

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

U.S. Federal regulations : All components are listed or exempted.

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: Zinc; zinc powder - zinc dust (stabilized); zinc oxide; ethylbenzene

Clean Water Act (CWA) 311: xylene; ethylbenzene; epichlorohydrin

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	5.5152
ethylbenzene	100-41-4	1.2017
epichlorohydrin	106-89-8	0.0015369
Cumen	98-82-8	0.03276

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304 - SARA 311/312: **SARA 302/304:** chlorine; epichlorohydrin

SARA 311/312 Hazards identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

Product/ingredient name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
xylene	5 - 10	Yes.	No.	No.	Yes.	No.
bisphenol A-(epichlorohydrin) epoxy resin MW =< 700	3 - 5	No.	No.	No.	Yes.	No.
n-butanol	3 - 5	Yes.	No.	No.	Yes.	No.
formaldehyde, polymer with (chloromethyl) oxirane and phenol	1 - 3	No.	No.	No.	Yes.	No.
ethylbenzene	1 - 3	Yes.	No.	No.	Yes.	Yes.
(C12-C14) Alkylglycidylether	1 - 3	No.	No.	No.	Yes.	No.
solvent naphtha (petroleum), light arom.	1 - 3	Yes.	No.	No.	Yes.	No.
middle molecular epoxy resin MMW 700-1200	0.5 - 1	No.	No.	No.	Yes.	No.
respirable quartz	0.1 - 0.5	No.	No.	No.	No.	Yes.

SARA 313 :

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
Zinc	Sec. (7440-66-6)	50 - 100
zinc powder - zinc dust (stabilized)	7440-66-6	50 - 100
xylene	1330-20-7	5 - 10
zinc oxide	1314-13-2	3 - 5
n-butanol	71-36-3	3 - 5
ethylbenzene	100-41-4	1 - 3

SECTION 15: Regulatory information

Supplier notification :

Product/ingredient name	CAS number	Concentration
zinc powder - zinc dust (stabilized)	7440-66-6	50 - 100
xylene	1330-20-7	5 - 10
zinc oxide	1314-13-2	3 - 5
n-butanol	71-36-3	3 - 5
ethylbenzene	100-41-4	1 - 3

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: ZINC; ZINC OXIDE FUME; XYLENE; DIMETHYLBENZENE; ETHYL BENZENE; ETHYLBENZENE; ROUGE DUST; IRON OXIDE DUST; N-BUTYL ALCOHOL; 1-BUTANOL
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: ZINC; ZINC OXIDE; XYLENES; BENZENE, DIMETHYL-; ETHYL BENZENE; BENZENE, ETHYL-; IRON OXIDE; FERRIC OXIDE; n-BUTYL ALCOHOL; 1-BUTANOL
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed: Zinc; Xylene mixed; Ethylbenzene; Butyl alcohol; 1-Butanol
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: ZINC COMPOUNDS; ZINC OXIDE; ZINC OXIDE FUME; BENZENE, DIMETHYL-; BENZENE, ETHYL-; IRON OXIDE; 1-BUTANOL
Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF :

WARNING: This product contains a chemical known to the State of California to cause cancer.
WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
respirable quartz	Yes.	No.	No.	No.
1-ethyl-2-methylbenzene	No.	Yes.	No.	No.
cadmium	Yes.	Yes.	0.05 µg/day (inhalation)	Yes.
Cumen	Yes.	No.	No.	No.
epichlorohydrin	Yes.	Yes.	Yes.	No.

SECTION 16: Other information

Remarks :

Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.
Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation :

Validated by US - HSE Products Coordinator on 21 September 2016

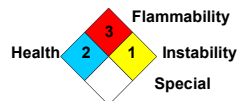
GHS Classification

Procedure used to derive the classification.

Classification	Justification
FLAMMABLE LIQUIDS - Category 3 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs and lungs) - Category 1	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

SECTION 16: Other information

Health	* 3
Fire hazard	3
Physical hazards	1
Personal protection	X



Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

ANSI = American National Standards Institute

HCS = Hazardous Communication System

TSCA = Toxic Substances Control Act

CFR = Code of federal Regulations

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

OSHA = United States Occupational Health and Safety Administration

NIOSH = National Institute for Occupational Safety and Health

ACGIH = American Conference of Industrial Hygienists

IARC = International Agency for Research on Cancer.

NTP = National Toxicology Program

ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development

BCF = Bioconcentration Factor

DOT = United States Department of Transportation

ERG = Emergency Response Guide

TDG = Transport of Dangerous Goods, Canada

SCT = Transportation & Communications Ministry, Mexico

IMDG = International Maritime Dangerous Goods

IATA = International Air Transport Association

SARA = Superfund Amendments Reauthorization Act

EPCRA = Emergency Planning and Community Right to Know Act

Notice to reader

 Indicates information that has changed from previously issued version.

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