

SAFETY DATA SHEET

1.0 IDENTIFICATION

- 1.1 **GHS product identifier:** ES-225 Resin
 1.2 **Other means of identification:** Bisphenol A/Phenol Epoxy Novalac Resin Blend
 1.3 **Recommended use of the chemical and restrictions on use:** N/A
 1.4 **Supplier's details:** CASS POLYMERS OF MICHIGAN, INC.
 815 WEST SHEPHERD STREET
 CHARLOTTE MI 48813 USA
 INFORMATION PHONE NUMBER: (248) 588-2270
 1.5 **Emergency phone number:** (703) 527-3887(Call Collect)

2.0 HAZARDS IDENTIFICATION

- 2.1 **Classification of the substance or mixture:**
 Skin Corrosion/Irritation 2, Eye Damage/Irritation 2B, Skin Sensitizer 1
 2.2 **GHS label elements:**



Signal Word: Warning

Hazard Statement: Causes skin irritation

Prevention: Wash hands thoroughly after handling. Wear protective gloves.

Response: If on skin: wash with plenty of soap and water. If skin irritation occurs: get medical advice/attention. Take off contaminated clothing and wash before reuse.

Signal Word: Warning

Hazard Statement: Causes eye irritation

Prevention: Flush eyes thoroughly after eye contact.

Response: If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.

Signal Word: Warning

Hazard Statement: May cause an allergic skin reaction

Prevention: Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves.

Response: If on skin: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Continued and thorough washing in flowing water for at least 15 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash contaminated clothing before reuse.

Disposal: Preferred method of disposal includes incineration under controlled conditions in accordance with all local and national laws and regulations.



- 2.3 **Other hazards which do not result in classification:** N/A
 2.4 **Hazards Material Information System (United States):**

Health	2
Flammability	1
Physical Hazard	0

Hazard Codes: 0=Chronic Hazard 0=Minimal Hazard, 1=Slight Hazard, 2=Moderate Hazard, 3=Serious Hazard, 4=Severe Hazard

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Chemical Identity	CAS No.	Concentration
Reaction Product of Bisphenol-A and Epichlorhydrin	25068-38-6	15% - 20%
1,4-Butanediol Diglycidyl Ether	2425-79-8	1% - 5%
Reaction Product of Epichlorhydrin, Phenol-Formaldehyde Novalac	28064-14-4	5% - 10%
Trimethylolpropane Triglycidyl Ether	30499-70-8	<1%
Neopentyl Glycol Diglycidyl Ether	17557-23-2	<1%
Aluminum	7429-90-5	55% - 65%

4.0 FIRST-AID MEASURES

4.1 Description of necessary first-aid measures:

Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

Inhalation: Move effected persons to fresh air; if effects occur, consult a physician.

Skin Contact: Continued and thorough washing in flowing water for at least 15 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Destroy contaminated leather items.

Eye Contact: Wash immediately and continuously with flowing water for at least 15 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

Ingestion: If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by a physician or medical personnel. Do not give anything by mouth to an unconscious person.

Note to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

4.2 Most Important symptoms/effects, acute and delayed:

Signs and Symptoms of Exposure (Acute effects): Contact with eyes may cause mild irritation and discomfort.

Contact with skin causes irritation, redness and discomfort which is transient. Inhalation of mists may cause irritation in the respiratory tract. Inhalation of vapors from heated materials may cause irritation in the respiratory tract. Coughing and chest pain may result.

Signs and Symptoms of Exposure (Possible Longer Term Effects): Repeated and/or prolonged exposure may cause allergic reaction/sensitization. Repeated and/or prolonged exposures may result in: adverse skin effects (such as rash, irritation or corrosion).

Medical Conditions Generally Aggravated by Exposure: Skin disorders and Allergies

Carcinogens under OSHA, ACGIH, NTP, IARC, Other: This product contains no known or suspected carcinogens in concentrations of 0.1 percent or greater.

4.3 Indication of immediate medical attention and special treatment needed, if necessary: N/A

5.0 FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Water fog or fine spray. Carbon dioxide. Alcohol resistant foam. Dry chemical fire extinguishers.

5.2 Specific hazards arising from the chemical:

Flash point is Not Determined. May generate toxic or irritating combustion products. Sudden reaction and fire may occur if product is mixed with an oxidizing agent.

5.3 Special protective actions for fire-fighters:

Wear positive-pressure self-contained breathing apparatus and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots and gloves.)

6.0 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Wear adequate personal protective equipment; see Section 8-EXPOSURE CONTROLS/PERSONAL PROTECTION.

6.2 Methods and materials for containment and clean up:

Large spills: Contain with dike. Pump into suitable and properly labeled containers.

Small spills: Dilute with water and recover or use non-combustible absorbent material/sand and shovel into appropriate containers.

7.0 HANDLING AND STORAGE

7.1 Precautions for safe handling:

Avoid contact with skin or eyes. Avoid breathing of vapors. Handle in well-ventilated workspace. When handling, do not eat, drink, or smoke.

Other Precautions: Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations (e.g. OSHA).

7.2 Conditions for safe storage, including any incompatibilities:

Keep away from: oxidizers. Keep in cool, dry, ventilated storage areas and in closed containers.

8.0 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	CAS No.	Percent	Exposure Limits	Source
Aluminum	7429-90-5	55% - 65%	15mg/m ³ Total 5mg/m ³ Respiratory	OSHA

8.2 Appropriate engineering controls:

No specific controls needed.

8.3 Individual protection measures, such as personal protective equipment:

Eye Protection: Chemical safety glasses. A full-face shield and vapor respirator is recommended for operations involving spraying or other operations placing this material under pressurized conditions.

Hand Protection: Neoprene rubber gloves. Impermeable gloves. Nitrile rubber gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.

Respiratory Protection: Not required under normal conditions and in a well-ventilated workplace. At elevated temperatures, a cartridge mask National Institute for Occupational Safety and Health (NIOSH) approved for organic vapors may be appropriate.

Protective Clothing: Long sleeved clothing.

Work and Hygienic Practices: Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift and before eating, smoking or using the toilet.

Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as the instructions/specifications provided by the glove supplier.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

9.1 **Appearance (physical state, color, etc.):** Thixotropic Liquid, Metallic Grey

9.2 **Odor:** Epoxy Odor

9.3 **Odor threshold:** N/A

9.4 **pH:** Not Determined

9.5 **Melting point/freezing point:** Not Determined

9.6 **Initial boiling point and boiling range:** Not Determined

9.7 **Flash Point:** Not Determined

9.8 **Evaporation rate:** N/A

9.9 **Flammability (solid, gas):** N/A

9.10 **Upper/lower flammability or explosive limits:** LFL-Not Determined; UFL-Not Determined

9.11 **Vapor pressure:** Not Determined

9.12 **Vapor Density:** N/A

9.13 **Relative density(Specific Gravity):** 1.73 – 1.77

9.14 **Solubility(ies):** Liquid Components are Not Readily Soluble in Water

9.15 **Partition coefficient; n-octanol/water:** N/A

9.16 **Auto-ignition temperature:** >300°C

9.17 **Decomposition temperature:** N/A

9.18 **Viscosity:** N/A

10.0 STABILITY AND REACTIVITY

10.1 **Reactivity:** N/A

10.2 **Chemical stability:** Stable

10.3 **Possibility of hazardous reactions:** Will not occur

10.4 **Conditions to avoid:** N/A

10.5 **Incompatible materials:** Oxidizing Agents (i.e. perchlorates, nitrates etc.). Sodium or Calcium Hypochlorite. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

10.6 **Hazardous decomposition products:** Carbon Monoxide in a fire. Carbon Dioxide in a fire. Irritating and toxic fumes at elevated temperatures.

11.0 TOXICOLOGICAL INFORMATION

11.1 **Likely routes of exposure:** Eye Contact, Skin Contact, Ingestion

11.2 Symptoms related to the physical, chemical and toxicological characteristics:

Ingestion: This material has a low potential for toxic effects due to ingestion.

Skin Contact: Prolonged or widespread skin contact is not likely to cause toxic effects.

Irritation:

Skin: Skin contact has caused allergic skin reactions in certain sensitized individuals.

Eyes: May cause slight temporary eye irritation with local redness. Mechanical irritation possible due to solid filler materials.

Inhalation: May cause allergic respiratory response upon exposure to heated vapors.

11.3 Delayed and immediate effects and also chronic effects from short and long term exposure:

Carcinogen: This material contains no known or suspected carcinogens in levels above 0.1%.

Mutagen: This material contains no known or suspected mutagens in levels above 0.1%.

Reproductive Hazard: This material contains no materials known or suspected to cause reproductive hazards in levels above 0.1%.

11.4 Numerical measures of toxicity:

This finished product has not been tested to determine individual toxicological/ecological limits. Individual components of this mixture have been independently tested by the raw material manufacturers and any known results have been presented below. The results for the individual components may not be representative of the toxicity of this finished product.

Ingredient Name	CAS No.	%	Test	Result	Route	Species
Polymer of Epichlorohydrin, Phenol-Formaldehyde Novolac	28064-14-4	5% - 10%	LD50	>4,000 mg/kg	Oral	Rat
1,4-Butanediol Diglycidyl Ether	2425-79-8	1% - 5%	LD50	1,134 mg/kg	Oral	Rat

12.0 ECOLOGICAL INFORMATION**12.1 Ecotoxicity:**

Diglycidyl Ether of Bisphenol-A (DGEBA) resins (5% formula mass) are toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in most sensitive species). However, DGEBA is insoluble in water under most conditions.

Individual components of this mixture have been independently tested by the raw material suppliers and any known information has been presented above. The results for the individual components may not be representative of the ecological toxicity of this finished product. Caution should be taken to prevent release to the environment. See Section 13 for further information.

12.2 Persistence and degradability:

This material contains components that show little or no evidence of biodegradability. Caution should be taken to prevent release to the environment. See Section 13 for further information.

Degradation: Based on the 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.

12.3 Bioaccumulative potential: N/A**12.4 Mobility in soil: N/A****12.5 Other adverse effects: N/A****13.0 DISPOSAL CONSIDERATIONS****13.1 Disposal methods:**

Preferred method of disposal includes incineration under controlled conditions in accordance with all local and national laws and regulations. The generation of waste should be avoided or minimized wherever possible. Untreated material is not suitable for disposal. Waste, even small quantities, should never be poured down drains, sewers or watercourses. Waste must be disposed of in accordance with federal, state and local environmental control regulations. This material, when properly mixed and cured with its resin component at the proper mix ratio, may be safely landfilled.

Contaminated packaging: Empty containers can only be disposed of when the remaining product adhering to the container walls has been removed. Hazard warning labels should be removed from the container only after it has been properly emptied.

14.0 TRANSPORT INFORMATION**14.1 UN number:** Not Regulated**14.2 UN proper shipping name:** Liquid Plastic, NOI**14.3 Transport hazard class(es):** Not Regulated

14.4 Packing group, if applicable: Not Regulated

14.5 Environmental hazards: N/A

14.6 Transport in bulk: N/A

14.7 Special precautions for user: N/A

15.0 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations:

Toxic Substances Control Act (TSCA): All components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Toxic Substance Control Act (TSCA) 12(b) Component(S): None

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es): Irritant. Sensitizer

EPA SARA Title III Section 312 (40CFR370) hazard class: Immediate Health Hazard. Delayed Health Hazard

EPA SARA Title III Section 313 (40CFR372) toxic chemicals above "de minimis" level are: None

CALIFORNIA PROPOSITION 65: SUBSTANCES (component (s) know to the State of California to cause cancer and/or reproductive and subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986") **NONE**

CANADA REGULATIONS

WHMIS Hazard Classification: Class D Division 2B

WHMIS Trade Secret Registry Number(s): This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. None

WHMIS SYMBOLS



DSL: Components of this product have been reported to Environment Canada in accordance with subsection 25 of the Canadian Environmental Protection Act and are included on the Domestic Substances List.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14): POLYMER OF EPICHLOROHYDRIN PHENOL-FORMALDEHYDE NOVOLAC, CAS #28064-14-4 , 40% (w/w)

16.0 OTHER INFORMATION

16.1 Date of Preparation: 10/01/2011

To the best of our knowledge, the information contained herein is accurate. Final determination of the suitability of any material is the sole responsibility of the users. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.