

Permabond®

Engineering Adhesives

SAFETY DATA SHEET Permabond ES550



1. Identification

Product identifier

Product name Permabond ES550

Recommended use of the chemical and restrictions on use

Application Adhesive.

Details of the supplier of the safety data sheet

Supplier Permabond LLC
14 Robinson Street
Pottstown, PA 19464
USA
Telephone: 732-868-1372 or 800-640-7599
Website: www.permabond.com

Emergency telephone number

Emergency telephone Medical: Poison Control Center 866-827-6282 (toll free) or 303-389-1109 Transport: CHEMTREC 800-424-9300

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Physical hazards Not Classified

Health hazards Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Skin Sens. 1 - H317

Label elements

Hazard symbols



Signal word Warning

Hazard statements H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.

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Precautionary statements

P261 Avoid breathing vapor/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P302+P352 If on skin: Wash with plenty of water.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P332+P313 If skin irritation occurs: Get medical advice/ attention.
 P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337+P313 If eye irritation persists: Get medical advice/ attention.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Contains

EPOXY RESIN (Number average MW <= 700), FORMALDEHYDE, OLIGOMERIC REACTION PRODUCT WITH 1-CHLORO, 2,3-EPOXYPROPANE AND PHENOL, REACTION PRODUCT BISPHENOL A - EPICHLOROHYDRIN, TRIMETHYLOL ETHANE TRIGLYCIDYL ETHER POLYMER

3. Composition/information on ingredients

Mixtures

EPOXY RESIN (Number average MW <= 700)	10-30%
CAS number: 1675-54-3	
Classification	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Skin Sens. 1 - H317	
Not relevant.	
FORMALDEHYDE, OLIGOMERIC REACTION PRODUCT WITH 1-CHLORO, 2,3-EPOXYPROPANE AND PHENOL	10-30%
CAS number: 9003-36-5	
Classification	
Skin Irrit. 2 - H315	
Skin Sens. 1 - H317	
Not relevant.	
4,4'-ISOPROPYLIDENEDIPHENOL, OLIGOMERIC REACTION PRODUCTS WITH 1-CHLORO-2,3-EPOXYPROPANE	5-10%
CAS number: 25068-38-6	
Classification	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
Skin Sens. 1 - H317	
Not relevant.	

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BISPHENOL A EPOXY - CTBN RUBBER ADDUCT 1-5% CAS number: 68610-41-3 REACH registration exemption – POLYMER
Classification Not relevant.
TRIMETHYLOL ETHANE TRIGLYCIDYL ETHER POLYMER <1% CAS number: 68460-21-9 REACH registration exemption – POLYMER
Classification Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Skin Sens. 1 - H317 Not relevant.

The full text for all hazard statements is displayed in Section 16.

Composition comments Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. First-aid measures

Description of first aid measures

Inhalation	Move the exposed person to fresh air. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention if any discomfort continues.
Skin Contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Remove any contact lenses and open eyelids wide apart. Get medical attention if any discomfort continues.

Most important symptoms and effects, both acute and delayed

Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Hazardous combustion products Burning produces irritating, toxic and obnoxious fumes. Carbon monoxide, carbon dioxide, and unknown hydrocarbons.

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Advice for firefighters

Protective actions during firefighting Use water to keep fire exposed containers cool and disperse vapors.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions

Environmental precautions Avoid the spillage or runoff entering drains, sewers or watercourses.

Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with sand or other inert absorbent. Transfer to suitable, labelled containers for disposal.

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Avoid contact with skin, eyes and clothing. Do not breathe vapour/spray. Wash hands thoroughly after handling. Keep container tightly sealed when not in use.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

Specific end uses(s)

Specific end use(s) Adhesive.

8. Exposure controls/Personal protection

Exposure controls

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection Wear tight-fitting, chemical splash goggles or face shield.

Hand protection Nitrile rubber or Viton™ gloves are recommended. Cotton or other absorbent gloves should not be worn.

Other skin and body protection Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.

Hygiene measures Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated.

Respiratory protection Respiratory protection may be required if excessive airborne contamination occurs. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance Paste.

Color Silver. Grey.

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Odor	Mild.
Odor threshold	No information available.
pH	Not relevant.
Melting point	Not available.
Initial boiling point and range	Not relevant.
Flash point	>100°C
Evaporation rate	Not available.
Evaporation factor	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.5
Solubility(ies)	Insoluble in water. Soluble in the following materials: Organic solvents.
Partition coefficient	Not available.
Auto-ignition temperature	Not applicable.
Decomposition Temperature	Not available.
Viscosity	~1500000 mPa s @ 23°C Thixotropic
Explosive properties	Not relevant.
Oxidizing properties	Not applicable.
Other information	Not relevant.
Volatile organic compound	<2 %, 20 grams/liter (Estimated)

10. Stability and reactivity

Reactivity	The following materials may react with the product: Strong oxidizing agents. Acids.
Stability	Stable at normal ambient temperatures. Polymerizes when heated.
Possibility of hazardous reactions	Reactions with the following materials may generate heat: Amines.
Conditions to avoid	Do not store near heat sources or expose to high temperatures.
Materials to avoid	Amines. Strong oxidizing agents.
Hazardous decomposition products	Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds.

11. Toxicological information

Information on toxicological effects

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Toxicological effects	The toxicological properties of this product have not been fully evaluated. Use of good industrial hygiene practices is required. Avoid direct contact with skin or eyes. Do not ingest or inhale.
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Irritating to skin.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye irritation.
<u>Skin sensitization</u>	
Skin sensitization	May cause sensitisation by skin contact.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Based on available data the classification criteria are not met.
<u>Carcinogenicity</u>	
Carcinogenicity	Does not contain any substances known to be carcinogenic.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Contains a substance/a group of substances which may damage fertility.
Reproductive toxicity - development	Contains a substance/a group of substances which may damage the unborn child.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	Based on available data the classification criteria are not met.
<u>Aspiration hazard</u>	
Aspiration hazard	Based on available data the classification criteria are not met.
Inhalation	Unlikely to be hazardous by inhalation because of the low vapor pressure of the product at ambient temperature. In high concentrations, vapors may irritate throat and respiratory system and cause coughing.
Ingestion	No harmful effects expected from quantities likely to be ingested by accident.
Skin Contact	Irritating to skin. May cause sensitisation by skin contact.
Eye contact	Irritating and may cause redness and pain.

Toxicological information on ingredients.

EPOXY RESIN (Number average MW <= 700)

Acute toxicity - oral

Acute toxicity oral (LD₅₀) 11,400.0
mg/kg)

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀) 2,000.1
mg/kg)

Species Rabbit

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Acute toxicity - inhalation

Notes (inhalation LC₅₀) No specific test data are available.

Skin corrosion/irritation

Skin corrosion/irritation Not irritating.

Animal data Edema score: Very slight oedema - barely perceptible (1).

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Respiratory sensitization

Respiratory sensitization No specific test data are available.

Skin sensitization

Skin sensitization Local Lymph Node Assay (LLNA) - Mouse: Sensitizing.

Germ cell mutagenicity

Genotoxicity - in vitro Conclusive data but not sufficient for classification.

Carcinogenicity

Carcinogenicity Conclusive data but not sufficient for classification.

IARC carcinogenicity IARC Group 3 Not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

Reproductive toxicity - fertility Fertility - NOAEL 750 mg/kg/day, Oral, Rat

Reproductive toxicity - development Developmental toxicity: - NOAEL: 180 mg/kg/day, Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure No specific test data are available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Conclusive data but not sufficient for classification.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

FORMALDEHYDE, OLIGOMERIC REACTION PRODUCT WITH 1-CHLORO, 2,3-EPOXYPROPANE AND PHENOL

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 10,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.1

Species Rat

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Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Animal data Method: OECD 404, Rabbit Slightly irritating.

Serious eye damage/irritation

Serious eye damage/irritation Method: OECD 405, Rabbit Not irritating.

Skin sensitization

Skin sensitization Local Lymph Node Assay (LLNA) - Mouse: Sensitizing.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Positive.

Genotoxicity - in vivo Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity Data lacking.

Reproductive toxicity

Reproductive toxicity - fertility Read-across data. Two-generation study - NOAEL 750 mg/kg/day, Oral, Rat F2

Reproductive toxicity - development Read-across data. Developmental toxicity: - NOAEL: 30 mg/kg, Dermal, Rabbit

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard Not available.

12. Ecological information

Toxicity No data available.

Bioaccumulative potential

Partition coefficient Not available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information Empty containers may contain product residue; follow SDS and label warnings even after they have been emptied.

Disposal methods Dispose of according to Federal, State/Provincial and local regulations. Refer to section 8 before handling.

14. Transport information

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Sea transport notes	Applies only to inner containers >5 litres. See 2.10.2.7 of the IMDG code.
Air transport notes	Applies only to inner containers >5 liters. See SP A197 (375)
DOT transport notes	Applies only to inner containers >5 liters. See CFR 49173.155 and 172.102.173
<u>UN Number</u>	
UN No. (International)	3082
<u>UN proper shipping name</u>	
Proper shipping name (International)	Environmentally hazardous substance, liquid, n.o.s. (contains Epoxy resin)
<u>Transport hazard class(es)</u>	
Transport Labels (International)	9

Transport labels**Packing group****Packing group (International)** III**Environmental hazards****Environmentally Hazardous Substance****15. Regulatory information****US Federal Regulations****SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

None above reporting levels

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None above reporting limits

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

None above reporting limits

SARA 313 Emission Reporting

None above reporting limits

*ALUMINIUM POWDER (STABILIZED)***SARA (311/312) Hazard Categories**Acute
Chronic**US State Regulations****California Proposition 65 Carcinogens and Reproductive Toxins**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm

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Inventories

Canada - DSL/NDSL

All the ingredients are listed or exempt.

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

None above reporting limits

16. Other information

Classification abbreviations and acronyms	Eye Irrit. = Eye irritation Repr. = Reproductive toxicity Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation
Revision date	10/15/2020
Revision	5
Supersedes date	11/19/2018
Hazard statements in full	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.

