

SPI Supplies Division

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: March 21, 2013

SPI #02815-AB, 02815-NA, 02815-AF
SPI-Chem™ ERL 4221 Epoxy Plasticizer

Section 1: Identification

Chemical Name/Synonyms.....ERL-4221; Cycloaliphatic Epoxide Resin ERL-4221

Chemical family..... Epoxides

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-527-3887

Worldwide FAX: 1-(703)-741-6090

Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name.....SPI #02815-AB, 02815-NA, 02815-AF SPI-Chem™ ERL 4221 Epoxy Plasticizer

CAS #'s.....Mixture

Chemical Formula.....Unknown

Hazardous Material Information System USA

Health.....2

Fire Hazard.....1

Reactivity.....1

Personal Protection.....

NFPA Rating (estimated)

Health.....2

Flammability.....1

Reactivity.....1

GHS Classification(s):

Skin sensitizer: Category 1

Acute Aquatic Toxicity: Category 3

GHS Hazard Symbol(s)



Signal Word: Warning

Hazard Statement(s):

H317: May cause an allergic skin reaction.

Precautionary Statement(s):

P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 2: Composition

Component Name	CAS#	Percent	EINECS/ELINCS
7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester	2386-87-0	82-89	219-207-4
Soluble oligomer	Not available	8-13	Not available
Monoepoxides of 3-cyclohexenylmethyl-3-cyclohexene Carboxylate	Not available	3-5	Not available

Section 3: Hazard Identification

Emergency overview: May cause eye irritation. May cause allergic skin reaction.

Appearance: Colorless, Odorless Liquid

Flash Point: 118°C, 246°F

Potential Health Effects

Eye: May cause slight eye irritation. Corneal injury is not likely.

Skin: May cause slight skin irritation with local redness. May cause an allergic skin reaction. Harmful absorption not likely to take place.

Ingestion: Ingestion of small amounts unlikely to lead to harmful effects due to the very low toxicity of this product.

Inhalation: Low volatility at room temperature makes exposure to vapor minimal. A single exposure is unlikely to be hazardous.

Chronic: Repeated overexposure in animals has been reported to affect kidney, liver, upper respiratory tract. This product has been toxic to the fetus in lab animals exposed to doses toxic to the mother.

Section 4: First Aid Measures

Eyes: Rinse with copious amounts of water for several minutes, removing contact lenses, if any, after the first 1-2 minutes and continue flushing for several more minutes. If irritation occurs, seek medical attention, preferably an ophthalmologist.

Skin: Immediately wash with plenty of soap and water. Remove contaminated clothing and shoes. Seek medical attention if irritation persists. Wash clothing before reuse, and discard items which cannot be decontaminated, such as shoes, belts and watchbands.

Ingestion: No emergency medical attention needed.

Inhalation: Move victim to fresh air. If effects occur, seek medical attention.

Notes to Physician: There is no specific antidote. Treat symptomatically and supportively.

Section 5: Fire Fighting Measures

General Information: Isolate fire and deny unnecessary entry. Do not use a direct stream of water. Burning liquids may be moved by flushing with water, to protect personnel and minimize property damage. Wear positive-pressure self-contained breathing apparatus and protective fire fighting clothing. Avoid contact with material. If contact is likely, change to full chemical resistant fire fighting clothing with SCBA. If this equipment is not available, wear full chemical resistant clothing with SCBA and fight fire from a remote location. Dense smoke is emitted when burned in oxygen deficient conditions. Violet steam eruption may occur upon application of direct water stream to hot liquids.

Extinguishing Media: Water fog or fine spray, dry chemical, carbon dioxide, foam. Do not use a direct stream of water, as this may spread the fire. Alcohol resistant foams (ATC) are preferred. Synthetic foams (including AFFF) or protein foams may function, but will be less effective. Water fog, applied gently, may be used as a blanket for fire extinguishment.

Hazardous Combustion Products: Smoke may contain the original material, as well as combustion products which may include, but not be limited to: phenolic compounds, carbon monoxide, carbon dioxide.

Section 6: Accidental Release Measures

General Information: Prevent from entering soil, ditches, sewers, waterways and/or groundwater. See section 12 for ecological information.

Spills/Leaks: Isolate area. Contain spilled material if possible. Collect in suitable and properly labeled containers for disposal. Wash the spill site with water. Dispose of wash water in accordance with local regulations.

Section 7: Handling and Storage

Handling: Avoid contact with eyes, skin. Wash thoroughly after handling. Utilize good general ventilation or local exhaust ventilation if necessary.

Storage: Store in cool, dry area away from oxidizing materials, acids, bases, amines.
Shelf life: use within 36 months.

Section 8: Exposure Controls and Personal Protection

Engineering Controls: Eye wash station; Good general ventilation

Exposure Limits: None established by OSHA, ACGIH or Dow.

Personal Protective Equipment

Eye/Face Protection: Use safety glasses. Safety glasses should be consistent with EN 166 or equivalent

Skin: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate (EVAL). Nitrile/butadiene rubber ((“nitrile” or “NBR”). Neoprene. Polyvinyl chloride (“PVC” or “vinyl”).

When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals, which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as the instructions/specifications provided by the glove supplier.

Respirators: No respiratory protection should be needed

Ingestion: Use personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Section 9: Physical and Chemical Properties

Physical State: Liquid

Appearance: Colorless

Odor: Odorless

pH: N/A

Vapor Pressure: ~<0.01 mm Hg 20°C

Vapor Density: (air = 1) 8.7 20°C Literature

Evaporation Rate: N/A

Viscosity: N/A

Boiling Point: >250°C (>482°F)

Freezing/Melting Point: -37°C (-35°F)

Autoignition Temperature: N/A

Flash Point: 118°C 2(45°F) (Pensky-Martens Closed Cup)

Decomposition Temperature: N/A

VOC: 0.00 g/L @ 20°C

Explosion

Limits Lower: N/A

Upper: N/A

Solubility in water: <0.06% 20°C Literature

Specific Gravity/Density: 1.173 20°C

Molecular Formula: N/A

Molecular Weight: 252 g/mol

Octanol/Water Partition Coefficient – Measured: 1.34

Section 10: Stability and Reactivity

Chemical Stability: Thermally stable at typical use temperatures

Conditions to Avoid: Elevated temperatures may cause decomposition.

Incompatibility with Other Materials: Oxidizing materials, acids, bases, amines

Hazardous Decomposition of Products: Depend upon temperature, air supply and presence of other materials. Uncontrolled exothermic reactions of epoxy resins release phenolics, carbon monoxide, and water.

Hazardous Polymerization: Will not occur by itself. Masses of more than 1 pound of product plus an aliphatic amine will cause an irreversible polymerization with considerable heat build-up.

Section 11: Toxicological Information

RTECS#: Not available

LD₅₀/LC₅₀ Information:

LD50 Rat, oral 5000 mg/kg
LD50 Rabbit, skin 23000mg/kg

Teratogenicity: Not available

Reproductive Effects: Has not been shown to affect reproduction in laboratory animals.

Neurotoxicity: Not available

Mutagenicity: Did not cause birth defects in laboratory animals. Has been toxic to the fetus in lab animals at doses toxic to the mother.

Other Studies: In animal studies, effects have been reported on the kidney, liver, and upper respiratory tract.

Section 12: Ecological Information

Environmental Fate: This material cannot be considered as readily biodegradable. The rate constant for the vapor phase reaction with photochemically produced hydroxyl radicals at 25°C is estimated to be 1.63E-11 cm³/molecule-sec. In the atmospheric environment, material is estimated to have a tropospheric half-life of 7.89 hours. The hydrolysis half-life is 33-47 days at 20°C, pH 7. In the Modified Sturm Test (OECD 301B) (%CO₂ evolved) at Day 28 – 71%.

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

Aquatic:

Water flea, <i>Daphnia magna</i> ;	Acute immobilization	EC50.	40 mg/L.
Green alga <i>Selenastrum capricornutum</i> ;	Growth inhibition;	EC50.	90 mg/L.
Rainbow trout (<i>Oncorhynchus mykiss</i>);	Acute	LC50.	24 mg/L.

Further Information: Bioconcentration potential is low (BCF < 100 or Log Pow <3). Potential for mobility in soil is very high (Koc between 0 and 50). Soil organic carbon/water partition coefficient (Koc) is estimated to be 29. Henry's Law Constant (H) is estimated to be: 3.60E-10 atm-m³/mole. Theoretical Oxygen Demand (THOD) – calculated: 2.16 mg/mg. Octanol/Water Partition Coefficient – Measured: 1.34.

Section 13: Disposal Considerations

RCRA P-Series: None

RCRA U-Series: None

Dispose of in accordance with all federal, state and local environmental regulations. Do not dump into any sewers, on the ground, or into any body of water. Use only a licensed, permitted waste management company to recycle, reprocess or incinerate this material.

Section 14: Transport Information

US DOT Hazard Class: Not regulated.

IATA (for international shipments): Not regulated.

Section 15: Regulatory Information

United States:

TSCA: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

CERCLA: This product does not contain chemicals at levels which require reporting under CERCLA Section 103.

SARA: Section 302 (RQ, TQQ) This product does not contain chemicals at levels which require reporting under this statute.

SARA Codes Sections 311 and 312:

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

Section 313 This product does not contain chemicals at levels which require reporting under this statute.

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

State (Individual states in the USA) This product does not contain chemicals at levels which require reporting under any state statute.

California Prop. 65: Not listed.

European/International Regulations:

European Labeling in Accordance with EC Directives

Hazard Symbols: Xi Irritant

Risk Phrases:

R 43: May cause skin sensitization
R52: Harmful to aquatic organisms

Safety Phrases:

S24: Avoid contact with skin
S36/37/39: Wear suitable protective clothing, gloves and eye/face protection

CANADA WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

DSL/NDL: All substances contained in this product are listed on the DSL List or are not required to be listed.

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues or fluids.

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