Safety Data Sheet

Name of Grade	CAS No.	KE No.	UN No.	EU No.
E-Z Coat Epoxy Resin	25068-38-6	KE-24000	3082	500-033-5

1. Product and company identification

a) Product Name: E-Z Coat Epoxy Resin

b) Recommended use of the chemical and restrictions on use

- General Use: Paints, coatings, adhesives, composite and electronic devices.
- Limit use: No data

c) Manufacturer/Supplier/Distributor Information

- Manufacturer: McKinnon Materials, Inc.
- Address: 5612 56th Commerce Park Blvd Tampa, FL 33610
- Emergency or Information Contact: Tel : 1-866-622-7031, Fax : (813) 621-9017
- Responsible department: R&D Center

2. Hazards identification

a) Hazard·Risk Classification

- Acute Toxicity - Oral : Category 4
- Skin Corrosion/Irritation : Category 2
- Serious Eye Damage/Irritation : Category 2A
- Skin Sensitization : Category 1
- Chronic hazards to the aquatic environment : Category 2

b) Label elements including precautionary statements

Symbol

- Signal Word: Warning
- Hazard·Risk Statement
  - H302 Harmful if swallowed
  - H315 Causes skin irritation
  - H319 Cause serious eye irritation
  - H317 May cause allergic skin reaction
  - H411 Toxic to aquatic life with long lasting effects
- Precautionary Statement
  - Prevention
    - P264 Wash ... thoroughly after handling.
    - P270 Do not eat, drink or smoke when using this product
    - P280 Wear protective gloves/protective clothing/eye protection/face protection.
    - P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
    - P272 Contaminated work clothing should not be allowed out of the workplace.
    - P273 Avoid release to the environment.
  - Response
    - P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
    - P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P321 Specific treatment (see ... on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

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

P337+P313 If eye irritation persists: Get medical advice/attention.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P363 Wash contaminated clothing before reuse.

P391 Collect spillage.

Storage	No data
Disposal	P501 Dispose of contents/container to ...

c) Other Hazard·Risk which are not included in the classification criteria

Health	2
Fire	1
Reactivity	0

3. Composition/Information on ingredients

Chemical Name	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane
Other name	DIGLYCIDYL ETHER OF BISPHENOL A
CAS number	25068-38-6
Content (%)	100%

4. First aid measures

a) Eye contact

Flush eyes with plenty of water for at least 15 minutes while holding eyelids open.
Consult a physician if signs of irritation appear

b) Skin contact

Immediately remove contaminated clothing or shoes, wash skin with plenty of water for at least 15 minutes.
Use soap if readily available, or follow by thoroughly washing soap and water.
Do not reuse clothing until thoroughly decontaminated.

c) Inhalation

Move person to fresh air area and provide oxygen if breathing is difficult.
Consult a physician if effects occur.

d) Ingestion

Do not induce vomiting because of risk of aspiration.
Rinse mouth with water.
Consult a physician if effects occur.

e) Acute and delayed symptoms/effects

Inhalation		
	Short-term exposure	Irritation, allergic reaction, blood congestion of th lungs
	Long-term exposure	Irritation, allergic reaction
Ingestion		
	Short-term exposure	No data for side effect.
	Prolonged exposure	No data for side effect.
Skin contact		
	Short-term exposure	Irritation, allergic reaction
	Prolonged exposure	Irritation, allergic reaction
Eye contact		
	Short-term exposure	Irritation
	Prolonged exposure	Irritation

f) Indication of immediate medical attention and notes for physician: Get adequate measure with the symptoms.

5. Fire-Fighting measures

a) Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	Dry chemical, carbon dioxide, water, foam in use.
Unsuitable extinguishing media	No data
Conflagration	Use foaming agent in use or water spray.

b) Specific hazards arising from the chemical

Combustion product	In case of fire, toxic fumes might be formed
Fire-fighting hazard	May cause fire.

c) Special protective equipment and precautions for fire-fighters: Isolate from heat, electrical equipment, sparks and opened flame.
Were self-contained breathing apparatus.

6. Accidental release measures

a) Personal precautions, protective equipment and emergency procedures: Use protective equipment as required.
Avoid skin contact or inhalation.

b) Environmental precautions and protective procedures

Air	No data
Soil	No data
Underwater	Store away from water supply and drainage.

c) Methods and materials for containment and cleaning up

Little leakage	No entry to unauthorized person. All disposal methods must be in compliance with applicable local regulations. Sweep spilled material into non-leaking containers. Absorpt with sand or non-flammable material.
Enormous leakage	No data

7. Handling and storage

a) Precautions for safe handling: Keep in a cool, well-ventilated place and container closed.

b) Conditions for safe storage: Avoid contact with skin and eyes. Use with adequate ventilation.
Keep away from heat, flame, sparks and high temperature.

8. Exposure controls & personal protection

a) Control parameters

Domestic regulation	No data
ACGIH (TLV)	No data
OSHA (PEL)	No data
NIOSH (REL)	No data
NIOSH (IDLH)	No data
ACGIH (BEI)	No data

b) Appropriate engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Use adequate ventilation to keep airborne concentration low.

c) Personal protective equipment

Respiratory protection	Never exceed the national Occupational Exposure Limit. Use local. Exhaust ventilation or handle in a ventilated enclosure. For greater protection a face piece chemical cartridge respirator is recommended.

Eye protection	Safety glasses with side shields.
Hands protection	Chemical resistant gloves.
Body protection	Chemical resistant protective suit. Chemicals resistant boots. Don't need protective clothes at normal state.

9. Physical and chemical properties

a) Appearance	
physical state	Liquid
color	Pale yellow
b) Odor	Odorless
c) Odor threshold	No data
d) pH	6-8
e) Melting point/freezing point	-16°C (at 1,013hPa)
f) Initial boiling point and boiling range	≥ 204.4°C
g) Flashing point	266°C (at 1,013hPa)
h) Evaporation rate	No data
i) Flammability (solid, gas)	No data
j) Upper/lower flammability or explosive limits	No data
k) Vapor pressure	4.6 x 10^{-8}Pa (at 25°C)
l) Solubility	6.9mg/L (at 20°C) - Insoluble
m) Vapor density	No data
n) Relative density	1.17 (Water = 1)
o) Partition coefficient: n-octanol/water	Log P = 3.242 +/- 0.324 (at 25°C and pH 7.1) log Kow = 2.821
p) Auto-ignition temperature	No data
q) Decomposition temperature	No data
r) Viscosity	11,500 - 13,500cps (25°C)
s) Formula mass (Mw)	368 - 400

10. Stability and reactivity

a) Chemical stability	Stable at normal temperature and pressure.
b) Possibility of hazardous reactions	No data
c) Conditions to avoid	Excessive heating. Avoid to contact with strong oxidizing agent, heat, spark and flame.
d) Incompatible materials	Acids, amines, bases, oxidizing agents.
e) Hazardous decomposition products	May produce hazardous carbon oxides, chloro hydrogen.

11. Toxicological information

a) Information on the likely routes of exposure

by respiratory organ	May cause respiratory organ irritation.
by mouth	No data
by skin and contact	May cause skin irritation.
by eye and contact	May cause eye irritation.

b) Delayed and immediate effects as well as chronic effects from short- and long-term exposure

Acute toxic

Oral
LD50 > 2,000mg/kg bw (female rat (Wistar), OECD Guideline 420)
LD50 1,000 - 5,000mg/Kg Rat
LD50 500 - 2,000mg/Kg Mouse

Dermal
LD50 > 2,000 mg/kg bw (male/female rat (Wistar), OECD Guideline 402)
LD50 > 1,200 - 20,000mg/Kg Rat
LD50 > 20,000mg/Kg Rabbit
LD50 1,270mg/kg Mouse

Inhalation
No data

Skin corrosive/irritant
Test material was slightly irritating to the skin in the key studies. For the skin, mean erythema and edema scores were 0.8 and 0.5, respectively.
Skin irritation at rabbit (CERI Hazard 2008)
R38 - Skin irritation (EU regulation 7th revision)
Moderate irritation at rabbit (STANDARD DRAIZE TEST)

Serious eye damage/eye irritation
Test material was slightly irritating to the eye in the key studies. The mean eye score was 0.4.
Eye irritation at rabbit (CERI Hazard 2008)
Moderate irritation at rabbit (STANDARD DRAIZE TEST)

Respiratory sensitization
No data

Skin sensitization
In a local lymph node assay, the concentration that would cause a 3-fold increase in proliferation (EC-3) was calculated to be 5.7% which is consistent with moderate dermal sensitization potential.
R43 (EU regulation 7th revision)
- May causes sensitization in contact with skin.

Carcinogenicity
Chronic toxicity/carcinogenicity studies (Oral, Rats, 2 years)
NOAEL : 15mg/kg/day (male) - Decreased body weight, an enlarged cecum
NOAEL : 100mg/kg/day (female)
Chronic toxicity/carcinogenicity studies (Dermal)
The systemic NOEL : 1mg/kg/day (female rats)
- Histopathologic changes (10, 100mg/kg/day)
The systemic NOEL : 100mg/kg/day (male mice)
The application site NOEL : 0.1mg/kg/day (male mice)
- Epidermal hyperplasia, chronic dermal inflammation, epidermal crusts (10, 100mg/kg/application)

IARC
No data

NTP
No data

OSHA
No data

WISHA
No data

ACGIH
No data

Germ Cell Mutagenicity
Not classified
in vitro - Positive

Histidine reverse gene mutation, Ames assay			
Type	*Salmonella typhimurium* (TA98, TA100, TA1535, TA1537,TA1538)		
Test Code	SAL+	Result	Positive

IN VITRO CHROMOSOMAL ABERRATIONS			
Type	CHL cells	Metabolic Activation	Without
Dose	0.01-0.04mg/mL (Solvent; DMSO)	Dose Regime	24hr continuos
Result	Positive (Structure change)		

in vivo - Negative
A number of in vivo assays were conducted and all were negative. These included, mouse micronucleus, dominant lethal, chromosome aberration, mouse spermatocytes and DNA damage/repair.

Reproductive toxicity
Effects on fertility (Rat, two generations)
No indications of any adverse effects on reproduction.
NOEL : 50mg/kg/day (adult males)
540mg/kg/day (adult female)
NOEL for reproductive effects : 750mg/kg/day.

Developmental toxicity
There was no evidence of developmental toxicity at doses levels resulting in maternal toxicity in rats and rabbits following oral administration or rabbits following dermal administration.

Specific target organ toxicity (single exposure): No data

Specific target organ toxicity (repeated exposure):

Oral gavage study
Slight body weight effects (250mg/kg/day and higher)
Enlarged cecum (necropsy, male rats, 250mg/kg/day)
Slight histopathologic changes
(the adrenal gland, cecum and kidney, rats, 250mg/kg/day)
A 3% decrease in body weight (female rats, 50mg/kg/day)

Dermal study
The systemic toxicity NOAEL : 100mg/kg/day
- slight decrease in body weights (1000mg/kg/day)
Dermal effects NOEL : 10mg/kg/day (female rats)

Aspiration hazard: No data

c) Numerical measures of toxicity: intraperitoneal (i.p.) LD50 1,400 - 2,400mg/kg Rat
LD50 1,780 - 4,000mg/kg Mouse

12. Ecological information

a) Aquatic and terrestrial ecotoxicity

fish: 96hr-LC50 = 3.6mg/L test mat. *Oncorhynchus mykiss*
(direct application, nominal) (OECD Guideline 203)
LC50 1.41mg/L 96hr *Oryzias latipes*

crustacea: 48hr-EC50 = 2.8mg/L test mat. *Daphnia magna*
(Direct addition, nominal, based on : mobility)
(OECD Guideline 202)
EC50 1.7mg/L 48hr

aquatic plant: 72hr-EC50 > 11mg/L *Scenedesmus capricornutum*
water soluble fraction (meas. (arithm. mean))
based on: growth rate (EPA-660/3-75-009)

b) Persistence and degradability

Persistence: No data

Resolvability: No data

c) Bioaccumulative potential

Concentration:
Kow = 3.24
log Kow 2.281 (Estimated)
BCF 31 L/kg ww
BCF 0.56 - 0.67

Bio resolvability: 0(%) 28day ; Non-degradable

d) Mobility in soil: Log Koc = 2.65 +/- 0.7
; QSAR prediction using the Kow method in KOCWIN v. 2.0 and Kow = 3.24 as input.

e) Other adverse effects:
Invertebrates : 21d-NOEC = 0.3 mg/L test mat. *Daphnia magna*
(nominal) based on: survival, growth and reproduction
(OECD Guideline 211)
Algae : 72hr-NOEC = 4.2 mg/L *Scenedesmus capricornutum*
water soluble fraction (meas. (arithm. mean))
based on: growth rate (EPA-660/3-75-009)

13. Disposal considerations

a) Disposal method: Dispose of contents/container to the regulations

b) Disposal precaution: No data

14. Transport information

a) UN number: 3082

b) UN proper shipping name — Environmentally hazardous substance, liquid, n.o.s. (Diglycidyl Ether of Bisphenol A)

c) Transport hazard class — 9

d) Packing group — Ⅲ

e) Marine pollution — P

f) Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises

Emergency procedure at fire — F - A

Emergency procedure at leakages — S - F

15. Regulatory information

a) Occupational Safety and Health Act — Not applicable

b) Toxic Chemical Control Act — Observational chemical

c) Safety Control Dangerous Substance Act — Not applicable

d) Wastes Control Act — Specific Waste

e) Other requirements in domestic and other countries

Domestic regulation

Persistent Organic Pollutant Control Act — Not applicable

Other countries

USA (OSHA) — Not applicable

USA (CERCLA) — Not applicable

USA (EPCRA 302) — Not applicable

USA (EPCRA 304) — Not applicable

USA (EPCRA 313) — Not applicable

USA (Rotterdam Convention material) — Not applicable

USA (Stockholm Convention material) — Not applicable

USA (Substance Montreal Protocol) — Not applicable

EU (Classification) — Xi Irritation
N Environmental hazardous

EU (Risk Phrases) — R36/38 Irritating to eyes and skin.
R43 May cause sensitization by skin contact.
R51/53 Toxic aquatic organisms, may cause long-term adverse effects in the aquatic environment.

EU (Safety Phrases) — S2 Keep out of the reach of children.
S28 After contact with skin, wash immediately with plenty of... (to be specified by the manufacturer).
S37/39 Wear suitable protective clothing and eye/face protection.
S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

Chemical Substance Inventory

	25068-38-6
Korea (KECL)	KE-24000
USA (TSCA)	Listed
EU	500-033-5
Japan (MITI/ENCS)	7-1279
China (IECSC)	Listed
Canada (DSL/NDSL)	DSL
Australia (AICS)	Listed

16. Other information

a) Information source and references — No data

b) Issuing date 2010-04-14

c) Revision number and date

Revision No.	6
Revision date	2013-07-23

d) others No data