

1. Identification

- A. Product name
- KER 828
- B. Recommended Use and Restriction on Use
- General use : Epoxy
 - Restriction on use : -
- C. Manufacturer / Supplier / distributor information
- Manufacturer information
 - Company name : KUMHO P&B CHEMICALS
 - Address : #218, Yeosu-Sandan 2ro, Yeosu-city Jeollanam-do, Korea
 - Dept. : Environment & Safety Team
 - Telephone number : 82-61-688-3682
 - Emergency telephone number : 82-61-688-3500
 - Fax number : 82-61-688-3686
 - E-mail address :
 - Supplier/Distributor information
 - Company name : KUMHO P&B CHEMICALS
 - Address : East Wing 8F, SignitureTowers Seoul, 100 Cheonggyecheon-ro, jung-gu, Seoul,
 - Dept. : Epoxy Resin Business Team
 - Telephone number : 82-2-6961-3464,3481
 - Emergency telephone number : 82-2-6961-1114
 - Fax number : 82-2-6961-3490,3492
 - E-mail address : epoxy_export@kpb.co.kr

2. Hazard identification

- A. GHS Classification
- Chronic aquatic toxicity : Category2
 - Serious eye damage/irritation : Category2
 - Skin sensitization : Category1
 - Skin corrosion/irritation : Category2
- B. GHS label elements
- Hazard symbols



- Signal words
 - Warning
- Hazard statements
 - H315 Causes skin irritation
 - H317 May cause an allergic skin reaction
 - H319 Causes serious eye irritation
 - H411 Toxic to aquatic life with long lasting effects
- Precautionary statements
 - 1) Prevention
 - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 - P264 Wash hands thoroughly after handling.
 - P272 Contaminated work clothing should not be allowed out of the workplace.
 - P273 Avoid release to the environment.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - 2) Response
 - P302+P352 IF ON SKIN: Wash with plenty of soap and 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.
 - P321 Specific treatment
 - 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 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P391 Collect spillage.

3) Storage

- Not applicable

4) Disposal

- P501 Dispose of contents/container in accordance with

C. Other hazards which do not result in classification : (NFPA Classification)

○ NFPA grade (0 ~ 4 level)

- Health : 2 , Flammability : 1, Reactivity : 0

3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS No.	Content
4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane		25068-38-6	100

4. First-aid measures

A. Eye Contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin Contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and
- Laundering enough contaminated clothing before reuse.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

D. Ingestion

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to Physician

- Notify medical personnel of contaminated situations and have them take appropriate protective

5. Fire-fighting measures

A. Suitable (Unsuitable) extinguishing media

- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for fire-fighters

- Move containers from fire area, if you can do without the risk.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Do not access if the tank on fire.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. Accidental release measures

A. Personal Precautions, protective equipment and emergency procedures

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Must work against the wind, let the upwind people to evacuate.
- Move container to safe area from the leak area.
- Remove all sources of ignition.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- if large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. Handling and storage

- A. Precautions for safe handling
 - Avoid contact with incompatible materials.
 - Dealing only with a well-ventilated place.
 - Do not handle until all safety precautions have been read and understood.
 - Operators should wear antistatic footwear and clothing.
 - Do not inhale the steam prolonged or repeated.
- B. Conditions for safe storage, including any incompatibilities
 - Save in cool, dry and well ventilated place.
 - Save applicable laws and regulations.
 - Avoid direct sunlight.
 - No open fire.
 - Prevent static electricity and keep away from combustible materials or heat sources.
 - Collected them in sealed containers.
 - Store away from water and sewer.

8. Exposure controls/personal protection

- A. Exposure Limits
 - ACGIH TLV
 - Not available
- B. Engineering Controls
 - A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.
- C. Personal Protective Equipment
 - Respiratory protection
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus
 - Eye protection
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
 - Hand protection
 - Wear appropriate glove.
 - Skin protection
 - Wear appropriate glove.

9. Physical and chemical properties

- A. Appearance
 - Appearance : Liquid(Viscous liquid)
 - Color : Clear (Pale yellow)
- O. Partition coefficient of n-octanol/water : not available
- B. Odor : Slightly
- P. Autoignition Temperature : not available
- C. Odor threshold : not available
- Q. Decomposition Temperature : not available
- D. pH : not available
- R. Viscosity : 12~14 Pa.s at 25°C
- E. Melting point/Freezing point : not available
- S. Molecular weight : not available

- F. Initial Boiling Point/Boiling Ranges : 260 °C Excess
- G. Flash point : 259 °C Excess
- H. Evapourating Rate : not available
- I. Flammability(solid, gas) : not available
- J. Upper/Lower Flammability or explosive limits : not available
- K. Vapour pressure : < 0.1 mmHg at 25°C
- L. Solubility : Negligible
- M. Vapour density : not available
- N. Specific gravity : 1.16

10. Stability and reactivity

- A. Chemical stability
 - This material is stable under recommended storage and handling conditions.
- B. Possibility of hazardous reactions
 - Hazardous Polymerization will not occur.
- C. Conditions to avoid
 - Avoid contact with incompatible materials and condition.
- D. Incompatible materials
 - Not available
- E. Hazardous decomposition products
 - Not available

11. Toxicological information

- A. Information on the likely routes of exposure
 - ☐ (Respiratory tracts)
 - Not available
 - ☐ (Oral)
 - Not available
 - ☐ (Eye · Skin)
 - Causes serious eye irritation
 - Causes skin irritation
 - May cause an allergic skin reaction
- B. Delayed and immediate effects and also chronic effects from short and long term exposure
 - ☐ Acute toxicity
 - * Oral
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 1001
 - * Dermal
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 20010
 - * Inhalation
 - Not available
 - ☐ Skin corrosion/irritation
 - Causes skin irritation
 - ☐ Serious eye damage/irritation
 - Causes serious eye irritation
 - ☐ Respiratory sensitization
 - Not available
 - ☐ Skin sensitization
 - May cause an allergic skin reaction
 - ☐ Carcinogenicity
 - * ISHL(The industrial Safety and Health Law in Korea)
 - Not available
 - * MOL Announcement
 - Not available
 - * IARC
 - Not available
 - * OSHA
 - Not available
 - * ACGIH
 - Not available
 - * NTP
 - Not available
 - * EU CLP
 - Not available
 - * Other
 - Not available

- Germ cell mutagenicity
 - Not available
- Reproductive toxicity
 - Not available
- STOT-single exposure
 - Not available
- STOT-repeated exposure
 - Not available
- Aspiration hazard
 - Not available

12. Ecological information

A. Ecotoxicity

- Fish
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LC50 1.41 mg/ℓ 96 hr *Oryzias latipes*
- Crustaceans
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : EC50 1.7 mg/ℓ
- Algae
 - Not available

B. Persistence and degradability

- Persistence
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : log Kow 2.821
- Degradability
 - Not available

C. Bioaccumulative potential

- Bioaccumulative potential
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : BCF 0.56 ~ 0.67 (Exposure concentrations: 10ug/l, 5.6 ≤ BCF=)
- Biodegradation
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : 0 (%) 28 day

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. Disposal considerations

A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- Incinerate the oil by separating the oil and water
- The remainder of the water after separation will be processed in a water pollution prevention facilities.
- Do incineration or stabilization of the residue after disposal as the method of evaporation and concentration.
- Do incineration of the residue after disposal as the method of agglomeration and precipitation.
- Take care of incineration or stabilization after treatment, purified by means of Separation• distillation• extraction• filtration• pyrolysis

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. Transport information

A. UN number

- Not available

B. Proper shipping name

- Not available

C. Hazard class : Not available

D. Packing group : Not available

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.

- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available

15. Regulatory information

A. National and/or international regulatory information

- POPs Management Law
 - Not applicable
- Information of EU Classification
 - * Classification
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : Xi; R36/38
 - * Risk Phrases
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : R36/38,
 - * Safety Phrase
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : S2, S28,
- U.S. Federal regulations
 - * OSHA PROCESS SAFETY (29CFR1910.119)
 - Not applicable
 - * CERCLA Section 103 (40CFR302.4)
 - Not applicable
 - * EPCRA Section 302 (40CFR355.30)
 - Not applicable
 - * EPCRA Section 304 (40CFR355.40)
 - Not applicable
 - * EPCRA Section 313 (40CFR372.65)
 - Not applicable
- Rotterdam Convention listed ingredients
 - Not applicable
- Stockholm Convention listed ingredients
 - Not applicable
- Montreal Protocol listed ingredients
 - Not applicable

16. Other information

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the
- 1. KOSHA
- 2. NITE
- 3. ESIS
- 4. NLM
- 5. SIDS
- 6. IPCS

B. Issue date

- 2013-01-07

C. Revision number and Last date revised

D. Other