

# SAFETY DATA SHEET

## 1. IDENTIFICATION

### A. Product name

- UNIPOXY LINING PLUS BASE-1000

### B. Recommended use and restriction on use

- General use : EPOXY FLOOR COATING
- Restriction on use : prohibition of use of station for other purpose

### C. Supplier information

- Company name : KCC Corporation
- Address : 764, Gwahak-ro, Bongdong-eup, Wanju\_Gun, Jeollabuk-do
- Emergency telephone number : 82-63-260-7000

## 2. HAZARD IDENTIFICATION

### A. GHS Classification

- Acute toxicity (dermal) : Category3
- Acute toxicity (inhalation: vapor) : Category2
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category2A
- Skin sensitization : Category1
- Carcinogenicity : Category1B
- Reproductive toxicity : Category1B
- Specific target organ toxicity(Single exposure) : Category2
- Specific target organ toxicity(Repeated exposure) : Category2
- Acute aquatic toxicity : Category2
- Chronic aquatic toxicity : Category2

### B. GHS label elements

#### ○ Hazard symbols



#### ○ Signal words

- Danger

#### ○ Hazard statements

- H311 Toxic in contact with skin
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H319 Causes serious eye irritation
- H330 Fatal if inhaled
- H350 May cause cancer
- H360 May damage fertility or the unborn child
- H371 May cause damage to organs (Refer Section SDS 11)
- H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H401 Toxic to aquatic organisms.
- H411 Toxic to aquatic life with long lasting effects

#### ○ Precautionary statements

##### 1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- 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.
- P281 Use personal protective equipment as required.
- P284 Wear respiratory protection.

## 2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P309+P311 If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P320 Specific treatment is urgent
- P321 Specific treatment
- P322 Specific measures
- 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.
- P361 Remove/Take off immediately all contaminated clothing.
- P362 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P391 Collect spillage.

## 3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

## 4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

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

### o NFPA grade (0 ~ 4 level)

- Health : 2, Flammability : 2, 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  | 50 ~ 60    |
| Limestone                                                             | Calcium carbonate                  | 1317-65-3   | 30 ~ 40    |
| Xylene                                                                | Dimethylbenzene                    | 1330-20-7   | 1 ~ 10     |
| Dodecylphenol, branched                                               | -                                  | 121158-58-5 | 1 ~ 10     |
| Titanium dioxide                                                      | Titanium oxide (TiO <sub>2</sub> ) | 13463-67-7  | 1 ~ 10     |
| Ethylbenzene                                                          | Benzene, ethyl-                    | 100-41-4    | 0 ~ 1      |
| Heavy alkylate naphtha(petroleum)                                     | -                                  | 64741-65-7  | 0 ~ 1      |
| Secret                                                                | Secret                             | -           | 1 ~ 10     |

## 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.
- Get medical attention immediately.
- 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 shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Prevent the spread of the skin.
- Remove contaminated clothing, shoes and isolate.
- Take the doctor's examination.
- Wash thoroughly after handling.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

#### **C. Inhalation contact**

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

#### **D. Ingestion contact**

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention 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 measures.
- If exposed or concerned, get medical attention/advice.

### **5. FIREFIGHTING MEASURES**

#### **A. Suitable (Unsuitable) extinguishing media**

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

#### **B. Specific hazards arising from the chemical**

- Not available

#### **C. Special protective actions for firefighters**

- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.

- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Keep containers cool with water spray.
- 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.
- Ventilate closed spaces before entering.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

### 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 amount
- 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.
- Spilled material should be treated as a potential risk of waste collected.

## 7. HANDLING AND STORAGE

### A. Precautions for safe handling

- Avoid direct physical contact.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Avoid contact with incompatible materials.
- Refer to Engineering controls and personal protective equipment.
- Do not inhale the steam prolonged or repeated.
- Contaminated work clothing should not be allowed out of the workplace.

### B. Conditions for safe storage, including any incompatibilities

- Do not apply direct heat.
- Save applicable laws and regulations.
- Do not apply any physical shock to container.
- Keep in the original container.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Store away from water and sewer.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## A. Exposure limits

### o ACGIH TLV

- [Xylene] : TWA 100 ppm (434 mg/m<sup>3</sup>), STEL, 150 ppm (651 mg/m<sup>3</sup>)
- [Titanium dioxide] : TWA 10 mg/m<sup>3</sup>
- [Secret] : TWA, 25 ppm (145 mg/m<sup>3</sup>)
- [Ethylbenzene] : TWA, 20 ppm (87 mg/m<sup>3</sup>)
- [Secret] : TWA 5 mg/m<sup>3</sup>
- [Secret] : Ceiling, 100 mg/m<sup>3</sup> (39 ppm), Aerosol
- [Secret] : TWA, 150 ppm (713 mg/m<sup>3</sup>), STEL, 200 ppm (950 mg/m<sup>3</sup>)
- [Secret] : TWA, 20 ppm (61 mg/m<sup>3</sup>)
- [Secret] : TWA, 20 ppm (97 mg/m<sup>3</sup>)

### o OSHA PEL

- [Secret]:50ppm 290mg/m<sup>3</sup>
- [Ethylbenzene]:100ppm 435mg/m<sup>3</sup>
- [Limestone]: 15 mg/m<sup>3</sup> (Total dust), 5 mg/m<sup>3</sup> (Respirable fraction)
- [Titanium dioxide]: 15 mg/m<sup>3</sup> (Total dust)
- [Xylene]:100ppm 435mg/m<sup>3</sup>
- [Secret]:50ppm 240mg/m<sup>3</sup>
- [Secret]:150ppm 710mg/m<sup>3</sup>
- [Secret]:100ppm 300mg/m<sup>3</sup>

## 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. Individual protection measures, such as personal protective equipment

### o 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 with a full facepiece.

### o 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.

### o Hand protection

- Wear appropriate glove.

### o Skin protection

- Wear appropriate clothing.

### o Others

- Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### A. Appearance

|                                                 |                        |
|-------------------------------------------------|------------------------|
| - Appearance                                    | Liquid(Viscous liquid) |
| - Color                                         | Not available          |
| B. Odor                                         | Not available          |
| C. Odor threshold                               | Not available          |
| D. pH                                           | Not available          |
| E. Melting point/Freezing point                 | Not available          |
| F. Initial Boiling Point/Boiling Ranges         | 138 °C                 |
| G. Flash point                                  | 63 °C                  |
| H. Evaporation rate                             | Not available          |
| I. Flammability(solid, gas)                     | Not available          |
| J. Upper/Lower Flammability or explosive limits | Not available          |
| K. Vapour pressure                              | Not available          |
| L. Solubility                                   | Not available          |
| M. Vapour density                               | Not available          |
| N. Specific gravity(Relative density)           | Not available          |
| O. Partition coefficient of n-octanol/water     | Not available          |
| P. Autoignition temperature                     | Not available          |
| Q. Decomposition temperature                    | Not available          |
| R. Viscosity                                    | Not available          |
| S. Molecular weight                             | Not available          |

## 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.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

### D. Incompatible materials

- Not available

### E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

## 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 > 1000 mg/kg Rat (NLM)
    - [Xylene] : LD50=3550 mg/kg rat

- [Titanium dioxide] : LD50 > 10000 mg/kg Rat (HSDB)
- [Secret] : LD50 = 5000 mg/kg Rat (RTECS)
- [Secret] : LD50 > 10 mg/kg Rat
- [Secret] : LD50 = 1230 mg/kg Rat
- [Secret] : LD50 > 5000 mg/kg Rat (NITE)
- [Ethylbenzene] : LD50 = 3500 mg/kg Rat (NITE)
- [Heavy alkylate naphtha(petroleum)] : LD50 > 7000 mg/kg Rat
- [Secret] : LD50 = 4200 mg/kg Rat
- [Secret] : LD50 = 4000 mg/kg Rat
- [Secret] : LD50 = 8532 mg/kg Rat (IUCLID)
- [Secret] : LD50 > 5000 mg/kg Rat (OECD TG 401; IUCLID; HSDB)
- [Secret] : LD50 = 14130 mg/kg Rat (HSDB)
- [Secret] : LD50 = 8400 mg/kg Rat
- [Secret] : LD50 > 5000 mg/kg Rat (ECHA)
- [Secret] : LD50 > 31600 mg/kg Rat
- [Secret] : LD50 > 90000 mg/kg Rat (KOSHA)
- [Secret] : LD50 = 790 mg/kg Rat (NLM)
- [Secret] : LD50 20,000 mg/kg Rat
- [Secret] : LD50 = 1746 mg/kg Rat (SIDS (1997))
- [Secret] : LD50 > 5000 mg/kg Rat (IUCLID)

#### \* Dermal

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 > 20000 mg/kg Rabbit (NLM)
- [Xylene] : LD50 4350 mg/kg Rabbit
- [Titanium dioxide] : LD50 > 10000 mg/kg Rabbit (IUCLID)
- [Secret] : LD50 = 5170 mg/kg Rabbit (RTECS)
- [Secret] : LD50 = 4 mg/kg Rat
- [Secret] : LD50 = 2000 mg/kg Rabbit
- [Secret] : LD50 > 2000 mg/kg Rat (SIDS)
- [Ethylbenzene] : LD50 = 15400 mg/kg Rabbit (NITE)
- [Heavy alkylate naphtha(petroleum)] : LD50 > 2000 mg/kg Rat
- [Secret] : LD50 > 20,000 mg/kg Rabbit
- [Secret] : LD50 = 10600 mg/kg Rabbit
- [Secret] : LD50 > 5000 mg/kg Rabbit (IUCLID)
- [Secret] : LD50 = 17600 mg/kg Rabbit (NITE(2006))
- [Secret] : LD50 > 2000 mg/kg Rabbit
- [Secret] : LD50 > 2000 mg/kg rabbit (ECHA)
- [Secret] : LD50 = 3400 mg/kg rabbit (HSDB)
- [Secret] : LD50 20,800 mg/kg Rabbit
- [Secret] : LD50 = 99 mg/kg Rabbit (SIDS (1997))
- [Secret] : LD50 > 2000 mg/kg Rabbit (IUCLID)

#### \* Inhalation

- [Xylene] : Steam LC50 6700 ppm 4 hr Rat (Equivalents : 29.09 mg/L)
- [Titanium dioxide] : LC50 > 6.82 mg/l 4 hr Rat (NITE(2006))
- [Secret] : Steam LC50 > 0.25 mg/l 4 hr Rat
- [Secret] : LC50 = 0.9 mg/l 4 hr Rat
- [Ethylbenzene] : LC50 = 17.4 mg/L/4 hr Rat (4000 ppm/4hr)(EHC, ASTDR)
- [Heavy alkylate naphtha(petroleum)] : Mist LC50 > 5.04 mg/l 4 hr Rat
- [Secret] : Steam LC50 = 28.8 mg/L/4 hr Rat (KOSHA)
- [Secret] : LC50 > 21 mg/L/4hr (GLP)(ECHA)
- [Secret] : LC50 > 5.2 mg/L 4 hr Rat, LC50=3400 ppm 4hr
- [Secret] : LC50 > 4.96 mg/L/4hr (ECHA)
- [Secret] : (> 2mg/l , Rat - LC50 (W.R. Grace & Co.))
- [Secret] : Steam LC50 = 24.25 mg/L/4 hr Rat (HSDB)
- [Secret] : LC50 = 2.2 mg/l 4 hr Rat (SIDS (1997))
- [Secret] : Steam LC50 36.9 mg/L/4 hr Rat (IUCLID)

- **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**
  - \* **IARC**
    - [Secret] : Group 3
    - [Ethylbenzene] : Group 2B
    - [Titanium dioxide] : Group 2B
  - \* **OSHA**
    - Not available
  - \* **ACGIH**
    - [Secret] : A3
    - [Secret] : A4
    - [Ethylbenzene] : A3
    - [Titanium dioxide] : A4
    - [Xylene] : A4
  - \* **NTP**
    - Not available
  - \* **EU CLP**
    - [Heavy alkylate naphtha(petroleum)] : Carc.1B
    - [Secret] : Carc.1B
- **Germ cell mutagenicity**
  - Not available
- **Reproductive toxicity**
  - May damage fertility or the unborn child
- **STOT-single exposure**
  - May cause damage to organs (Refer Section SDS 11)
- **STOT-repeated exposure**
  - May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- **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 (NITE)
  - [Xylene] : LC50=3.3mg/L 96 hr (NITE)
  - [Secret] : LC50 5 mg/ℓ 96 hr Oncorhynchus mykiss (IUCLID)
  - [Secret] : LC50 460mg/L 96hr fathead minnow (NITE: SIDS, 2004)
  - [Secret] : LC50 = 140 mg/ℓ 96 hr (SIDS)
  - [Ethylbenzene] : LC50 = 9.09 mg/ℓ 96 hr
  - [Secret] : LC50 = 11800 mg/ℓ 96 hr
  - [Secret] : LC50 = 8050 mg/ℓ 96 hr Pimephales promelas (ECOTOX)
  - [Secret] : LC50 100 mg/ℓ 96 hr Oryzias latipes (SIDS)
  - [Secret] : LC50 100 mg/ℓ 96 hr (Salmo trutta) (반지수식, OECD TG 203, IUCLID)
  - [Secret] : LC50 = 62 mg/ℓ 96 hr (Estimate)
  - [Secret] : LC50 = 9.22 mg/ℓ 96 hr Oncorhynchus mykiss (IUCLID)
  - [Secret] : LC50 100 mg/L 96hr Lepomis macrochirus (ECOTOX)LC50 > 100 mg/ℓ 96 hr Oryzias latipes (NITE: MOE eco-toxicity tests of chemicals, 1996)
  - [Secret] : LC50 = 710 mg/ℓ 96 hr Oncorhynchus mykiss (ECOTOX)

- [Secret] : LC50 > 1116 mg/ℓ 96 hr (NITE)
- [Secret] : LC50 4.8 mg/ℓ 96 hr Brachydanio rerio (OECD SIDS)

#### ○ Crustaceans

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : EC50 1.7 mg/ℓ 48 hr (NITE)
- [Titanium dioxide] : EC50 > 1000 mg/ℓ 48 hr (NITE)
- [Secret] : EC50 4.8 mg/ℓ 48 hr Daphnia magna (IUCLID)
- [Secret] : EC50 230mg/L 48hr Daphnia magna (NITE: Ministry of the Environment, 1997)
- [Secret] : LC50 = 65 mg/ℓ 24 hr
- [Ethylbenzene] : LC50 = 0.4 mg/ℓ 96 hr (CERI-NITE)
- [Heavy alkylate naphtha(petroleum)] : LC50 = 2 mg/ℓ 48 hr Mysidopsis bahia (IUCLID)
- [Secret] : EC50 = 609.98 mg/ℓ 48 hr
- [Secret] : LC50 = 41100 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : EC50 = 373 mg/ℓ 48 hr Daphnia magna (SIDS)
- [Secret] : EC50 100 mg/ℓ 48 hr Daphnia magna (OECD TG 202, IUCLID)
- [Secret] : LC50 = 32 mg/ℓ 48 hr (Estimate)
- [Secret] : EC50 = 6.14 mg/ℓ 48 hr Daphnia magna (IUCLID)
- [Secret] : EC50 = 1983 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : EC50 = 1000 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : LC50 >130 mg/ℓ 96 hr
- [Secret] : EC50 3.2 mg/ℓ 48 hr Daphnia magna (OECD SIDS)

#### ○ Algae

- [Secret] : EC50 3.5 mg/ℓ 96 hr Selenastrum capricornutum (IUCLID)
- [Secret] : EC50 770mg/L 72hr (NITE: Ministry of the Environment, 1997)
- [Heavy alkylate naphtha(petroleum)] : EC50 = 13 mg/ℓ 72 hr Selenastrum capricornutum (IUCLID)
- [Secret] : EC50 = 169 mg/ℓ 96 hr (NITE)
- [Secret] : EC50 = 6500 ~ 13000 mg/ℓ 96 hr Selenastrum capricornutum (IUCLID)
- [Secret] : EC50 1000 mg/ℓ 72 hr Selenastrum capricornutum (SIDS)
- [Secret] : EC50 100 mg/ℓ 72 hr Selenastrum capricornutum (OECD TG 201, IUCLID)
- [Secret] : EC50 = 19 mg/ℓ 72 hr Selenastrum capricornutum (IUCLID)
- [Secret] : EC50 = 1000 mg/ℓ 72 hr Selenastrum capricornutum (NITE)

## B. Persistence and degradability

#### ○ Persistence

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : log Kow = 2.821 (Estimate)
- [Xylene] : log Kow=3.16 (NITE)
- [Secret] : log Kow 2.86 (Estimate)
- [Secret] : log Kow 4.4 (20 °C) (IUCLID)
- [Secret] : log Kow = 1.1
- [Secret] : log Kow 2.56 (SRC)
- [Heavy alkylate naphtha(petroleum)] : log Kow = 2.8 ~ 6 (IUCLID)
- [Secret] : log Kow = -1.93 (ICSC)
- [Secret] : log Kow = 0.43 (IUCLID)
- [Secret] : log Kow = 1.78
- [Secret] : log Kow = 2.1 ~ 6 (IUCLID)
- [Secret] : log Kow = -1.38
- [Secret] : log Kow 0.9 (ICSC)
- [Secret] : log Kow = -1.4 (IUCLID)
- [Secret] : log Kow = 0.83 (PHYSPROP Database)
- [Secret] : log Kow 4.57

#### ○ Degradability

- [Secret] : BOD = 0.78 COD = 1.19 BOD/COD= 0.66 (IUCLID)
- [Secret] : BOD5/COD = 0.43

### C. Bioaccumulative potential

#### o Bioaccumulative potential

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : BCF 0.56 ~ 0.67 (Exposure concentrations:10ug/l, 5.6<= BCF<6.8(Exposure concentrations:1ug/l)) (NITE)
- [Secret] : BCF 148.8 (Estimate)
- [Secret] : BCF = 0.4 ~ 42 ((25 °C), Cyprinus carpio(잉어, fresh water), 2.5mg/l)
- [Secret] : BCF = 200 (IUCLID)
- [Secret] : BCF 3.162 (Estimate)
- [Secret] : BCF < 1 (SIDS)

#### o Biodegradation

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : 0 (%) 28 day (NITE)
- [Xylene] : 39 (%) (NITE)
- [Secret] : 7 ~ 8 (%) 28 day (OECD TG 301D) (IUCLID)
- [Secret] : Biodegradability = 94 (%) 28 day (Aerobic, Activated Sludge)
- [Heavy alkylate naphtha(petroleum)] : Biodegradability = 8 ~ 15 (%) 28 day (Aerobic, Activated Sludge, Domestic wastewater, Other)
- [Secret] : Biodegradability = 91 (%) 28 day (Aerobic, Activated Sludge, Decomposes very well)
- [Secret] : Biodegradability = 89 (%) 20 day (IUCLID)
- [Secret] : Biodegradability > 60 (%) 28 day (OECD Screening Information Data Set)
- [Secret] : Biodegradability = 98 (%) (NITE)
- [Secret] : Biodegradability > 60 (%) 10 day (SIDS)
- [Secret] : Biodegradability = 96 (%) (NITE: existing chemical safety inspections data)
- [Secret] : 41 ~ 42 (%) 28 day (OECD SIDS)

### D. Mobility in soil

- [Xylene] : log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)
- [Ethylbenzene] : log Kow = 3.15 (11)

### E. Other adverse effects

- Not available

## 13. DISPOSAL CONSIDERATIONS

### A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat sepratly, 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.

### B. Special precautions for disposal

- The user of this product must disposal 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 No. (IMDG)

- 1263

### B. Proper shipping name

- PAINT INCLUDING PAINT, LACQUER, ENAMEL, STAIN, SHELLAC SOLUTIONS, VARNISH, POLISH, LIQUID FILLER, AND LIQUID LACQUER BASE

#### C. Hazard Class

- 3

#### D. IMDG Packing group

- II

#### E. Marine pollutant

- [Ethylbenzene] : Applicable  
- [Secret] : 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.  
  
- Air transport(IATA): Not subject to IATA regulations.  
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)  
- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

### 15. REGULATORY INFORMATION

#### A. National and/or international regulatory information

##### o POPs Management Law

- Not applicable

##### o Information of EU Classification

###### \* Classification

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : Xi; R36/38 R43 N; R51-53  
  
- [Xylene] : R10 Xn; R20/21 Xi; R38  
- [Secret] : Xi; R36/38/R43  
- [Secret] : Xn; R20/22  
- [Secret] : R10 Xi; R37  
- [Ethylbenzene] : F; R11Xn; R20  
- [Heavy alkylate naphtha(petroleum)] : Carc. Cat. 2; R45 Muta. Cat. 2; R46 Xn; R65  
- [Secret] : Xn; R22  
- [Secret] : R10  
- [Secret] : R10 R66 R67  
- [Secret] : Carc. Cat. 2; R45/Muta. Cat. 2; R46, Xn; R65  
- [Secret] : Carc. Cat. 2; R45 - Muta. Cat. 2; R46 - Xn; R65  
- [Secret] : R10 Xn; R 22 Xi; R37/38-41 R67  
- [Secret] : Xn; R20/21/22 Xi; R36/38

###### \* Risk Phrases

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : R36/38, R43, R51/53  
  
- [Xylene] : R10, R20/21, R38  
- [Secret] : R36/38, R43  
- [Secret] : R20/22  
- [Secret] : R10, R37  
- [Ethylbenzene] : R11, R20  
- [Heavy alkylate naphtha(petroleum)] : R45, R65, R46  
- [Secret] : R22  
- [Secret] : R10  
- [Secret] : R10, R66, R67  
- [Secret] : R45, R65, R46  
- [Secret] : R45, R46, R65

- [Secret] : R10, R22, R37/38, R41, R67

- [Secret] : R20/21/22, R36/38

**\* Safety Phrase**

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : S2, S28, S37/39, S61

- [Xylene] : S2, S25

- [Secret] : S2, S39

- [Secret] : S2, S26

- [Secret] : S2, S24

- [Ethylbenzene] : S2, S16, S24/25, S29

- [Heavy alkylate naphtha(petroleum)] : S53, S45

- [Secret] : S2

- [Secret] : S2, S25

- [Secret] : S53, S45

- [Secret] : S2, S7/9, S13, S26, S37/39, S46

- [Secret] : S2, S36/37, S46

o **U.S. Federal regulations**

**\* OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

**\* CERCLA Section 103 (40CFR302.4)**

- [Xylene] : 45.3599 kg 100 lb

- [Ethylbenzene] : 453.599 kg 1000 lb

- [Secret] : 2267.995 kg 5000 lb

**\* EPCRA Section 302 (40CFR355.30)**

- Not applicable

**\* EPCRA Section 304 (40CFR355.40)**

- Not applicable

**\* EPCRA Section 313 (40CFR372.65)**

- [Xylene] : Applicable

- [Ethylbenzene] : Applicable

- [Secret] : Applicable

o **Rotterdam Convention listed ingredients**

- Not applicable

o **Stockholm Convention listed ingredients**

- Not applicable

o **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 information contained herein.

- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

### B. Issue date

- 2017-03-23

### C. Revision number and Last date revised

- Not applicable

### D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).