

SAFETY DATA SHEET

1. IDENTIFICATION

A. Product name

- UNIPOXY PUTTY BASE

B. Recommended use and restriction on use

- General use : EPOXY FLOOR COATING
 - Restriction on use : Not available

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

- Flammable liquids : Category4
 - Acute toxicity (oral) : Category5
 - Acute toxicity (inhalation: vapor) : Category5
 - Skin corrosion/irritation : Category2
 - Serious eye damage/irritation : Category2A
 - Skin sensitization : Category1
 - Germ cell mutagenicity : Category2
 - Carcinogenicity : Category2
 - Reproductive toxicity : Category1B
 - Specific target organ toxicity(Single exposure) : Category2
 - Specific target organ toxicity(Repeated exposure) : Category2
 - Acute aquatic toxicity : Category3
 - Chronic aquatic toxicity : Category2

B. GHS label elements

○ Hazard symbols



○ Signal words

- Danger

○ Hazard statements

- H227 Flammable liquids
 - H303 May harmful if swallowed.
 - H315 Causes skin irritation
 - H317 May cause an allergic skin reaction
 - H319 Causes serious eye irritation
 - H333 May be harmful if inhaled.
 - H341 Suspected of causing genetic defects
 - H351 Suspected of causing 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)
 - H402 Harmful 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.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P260 Do not breathe gas/mist/vapours/spray.
- P261 Avoid breathing gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- 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.

2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
- 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.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- 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.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
- P391 Collect spillage.

3) Storage

- P403+P235 Store in a well-ventilated place. Keep cool.
- 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)

○ 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(%)
Calcite	-	13397-26-7	60 ~ 70
4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane	-	25068-38-6	20 ~ 21.1
Calcium carbonate	Carbonic acid calcium salt (1:1)	471-34-1	1 ~ 5.7
(Butoxymethyl)oxirane	Butyl glycidyl ether	2426-08-6	0.1 ~ 2.4
Xylene	Dimethylbenzene	1330-20-7	1 ~ 1.4
Ethylbenzene	Benzene, ethyl-	100-41-4	0.1 ~ 0.3
Secret	Secret	자료없음	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.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Remove contaminated clothing, shoes and isolate.
- 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.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- 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

- Move containers from fire area, if you can do without the risk.
- Cool containers with water until well after fire is out.
- Do not access if the tank is on fire.
- Wear appropriate protective equipment.
- 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.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Handle the damaged containers or spilled material after wearing appropriate 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 contact with incompatible materials.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Operators should wear antistatic footwear and clothing.
- 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 use damaged containers.
- Avoid direct sunlight.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- 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

- ACGIH TLV
 - [(Butoxymethyl)oxirane] : TWA, 3 ppm (16 mg/m³) Skin; Sensitizer (SEN)
 - [Xylene] : TWA 100 ppm (434 mg/m³), STEL, 150 ppm (651 mg/m³)
 - [Ethylbenzene] : TWA, 20 ppm (87 mg/m³)
 - [Secret] : TWA, 20 ppm (61 mg/m³)

- **OSHA PEL**
 - [Ethylbenzene]:100ppm 435mg/m³
 - [Xylene]:100ppm 435mg/m³
 - [Secret]:100ppm 300mg/m³
 - [(Butoxymethyl)oxirane]:50ppm 270mg/m³

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as 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 with a full facepiece.

○ 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 chemical resistant glove.

○ Skin protection

- Wear appropriate chemical resistant protective clothing.

○ Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid(Viscous liquid)
- Color	Not available
B. Odor	Solvent odor
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	62 °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)	1.95~1.99
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)
 - May harmful if swallowed.
- (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
 - Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 > 1000 mg/kg Rat (NLM)
 - [Calcium carbonate] : LD50 = 6450 mg/kg Rat (IUCLID)
 - [(Butoxymethyl)oxirane] : LD50 = 2050 mg/kg Rat (HSDB)
 - [Xylene] : LD50=3523 mg/kg rat (EU Method B1)
 - [Secret] : LD50 536 mg/kg Mouse (NLM)
 - [Ethylbenzene] : LD50 = 3500 mg/kg Rat (NITE)
 - [Secret] : LD50 = 3430 mg/kg rabbit (GLP, ECHA)
 - [Secret] : LD50 22,000 mg/kg Rat (ECHA)
 - * Dermal
 - Product (ATEmix) : >5000mg/kg
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 > 20000 mg/kg Rabbit (NLM)
 - [(Butoxymethyl)oxirane] : LD50 = 788 mg/kg Rabbit (HSDB)
 - [Xylene] : LD50 >4350 mg/kg Rabbit (IUCLID) LD50 12126 mg/kg Rabbit (isomer: m-xylene)
 - [Secret] : LD50 1600 mg/kg Mouse (NLM)
 - [Ethylbenzene] : LD50 = 15400 mg/kg Rabbit (NITE)
 - [Secret] : LD50 = 3400 mg/kg rabbit (HSDB)

- [Secret] : LD50 20,800 mg/kg Rabbit (HSDB, IUCLID)
- * **Inhalation**
 - Product (ATEmix) : 20.0mg/L < ATEmix <= 50.0mg/L
 - [(Butoxymethyl)oxirane] : LC50 Rat >5.05 mg/L 4hr (> 670 ppm/8 hr) (HSDB)
 - [Xylene] : LC50 5922 ppm 4 hr Rat (25.713 mg/L EPA OPP 81-3, GLP)
 - [Ethylbenzene] : LC50 = 17.4 mg/L/4 hr Rat (4000 ppm/4hr)(EHC, ASTDR)
 - [Secret] : Steam LC50 = 24.25 mg/L/4 hr Rat (HSDB)
- o **Skin corrosion/irritation**
 - Causes skin irritation
- o **Serious eye damage/irritation**
 - Causes serious eye irritation
- o **Respiratory sensitization**
 - Not available
- o **Skin sensitization**
 - May cause an allergic skin reaction
- o **Carcinogenicity**
 - * **IARC**
 - [Ethylbenzene] : Group 2B
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [Ethylbenzene] : A3
 - [Xylene] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - [(Butoxymethyl)oxirane] : Carc.2
- o **Germ cell mutagenicity**
 - Suspected of causing genetic defects
- o **Reproductive toxicity**
 - May damage fertility or the unborn child
- o **STOT-single exposure**
 - May cause damage to organs (Refer Section SDS 11)
- o **STOT-repeated exposure**
 - May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- o **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- o **Fish**
 - [Calcite] : LC50 554000 mg/l 96 hr (Estimate)
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LC50 1.41 mg/l 96 hr Oryzias latipes (NITE)
 - [Calcium carbonate] : LC50 56000 mg/l 96 hr (ECOTOX)
 - [Xylene] : LC50=3.3mg/L 96 hr (NITE)
 - [Secret] : LC50 = 344 mg/l 96 hr (ECOTOX)
 - [Ethylbenzene] : LC50 5.1 mg/l 96 hr (ECHA)
 - [Secret] : LC50 1376 mg/l 96 hr Pimephales promelas(OECD TG 203, GLP)
 - [Secret] : LC50 = 710 mg/l 96 hr Oncorhynchus mykiss (ECOTOX)
- o **Crustaceans**
 - [Calcite] : LC50 446000 mg/l 48 hr (Estimate)
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : EC50 1.7 mg/l 48 hr (NITE)

- [Secret] : EC50 500 mg/ℓ 48 hr (IUCLID)
- [Ethylbenzene] : LC50 2.4 mg/ℓ ~ 1.8 mg/ℓ 48 hr Mysidopsis bahia (EC50 48hr >5.2mg/L, EPA 1985, GLP)
- [Secret] : EC50 = 1983 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : EC50 = 1000 mg/ℓ 48 hr Daphnia magna (ECOTOX)

○ **Algae**

- [Calcite] : EC50 220000 mg/ℓ 96 hr (Estimate)
- [Calcium carbonate] : EC50 = 22000 mg/ℓ 96 hr (Estimate)
- [Secret] : EC50 = 500 mg/ℓ 72 hr (IUCLID)
- [Ethylbenzene] : EC50 3.6 mg/ℓ 96 hr (EPA 1985, GLP)
- [Secret] : EC50 225 mg/ℓ 96 hr Selenastrum capricornutum (OECD TG 201, GLP)
- [Secret] : EC50 = 1000 mg/ℓ 72 hr Selenastrum capricornutum (NITE)

B. Persistence and degradability

○ **Persistence**

- [Calcite] : log Kow = -2.12 (estimate)
- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : log Kow = 2.821 (Estimate)
- [Xylene] : log Kow=3.16 (NITE)
- [Secret] : log Kow = 1.16 (UAKRON)
- [Ethylbenzene] : log Kow 3.6 (ECHA)
- [Secret] : log Kow 1 (OECD TG 117)
- [Secret] : log Kow = -1.4 (IUCLID)

○ **Degradability**

- [Secret] : 75% 20days

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Calcite] : BCF 3.162 (Estimate)
- [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)
- [Calcium carbonate] : BCF = 3.162 (Estimate)
- [Secret] : BCF = 0.3493 (Estimate)
- [Ethylbenzene] : BCF 1
- [Secret] : BCF < 1 (SIDS)

○ **Biodegradation**

- [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : 0 (%) 28 day (NITE)
- [Xylene] : 39 (%) (NITE)
- [Ethylbenzene] : 70-80% 28 day (ISO 14593 CO2, GLP)
- [Secret] : 92% 20 days (ECHA)
- [Secret] : Biodegradability > 60 (%) 10 day (SIDS)

D. Mobility in soil

- [Calcium carbonate] : Koc = 4.971
- [Xylene] : log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)

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.

B. Special precautions for disposal

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

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- 3082

B. Proper shipping name

- ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.

C. Hazard Class

- 9

D. IMDG Packing group

- III

E. Marine pollutant

- 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): This product is NOT classified as dangerous for IATA Transport.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- o **POPs Management Law**
 - Not applicable
- o **Information of EU Classification**
 - * **Classification**
 - [Xylene] : H226,H332,H312,H315
 - [Ethylbenzene] : H225,H332
 - [Secret] : H226,H302,H335,H315,H318,H336
 - [(Butoxymethyl)oxirane] : H226,H351,H341,H332,H302,H335,H317,H412
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : H319,H315,H317,H411
 - [Secret] : H302,H319
- 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

- 2013-08-09

C. Revision number and Last date revised

- 5 times, 2019-04-15

D. Other

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