

SAFETY DATA SHEET

1. IDENTIFICATION

A. Product name

- ET5775-A-BLUE(H)

B. Recommended use and restriction on use

- General use : Heavyduty Epoxy Topcoat
- Restriction on use : Do not use except for purpose

C. Supplier information

- Company name : KCC Corporation
- Address : 30, Bangeojinsunhwando-ro, Dong-gu, Ulsan
- Emergency telephone number : 82-52-280-1717

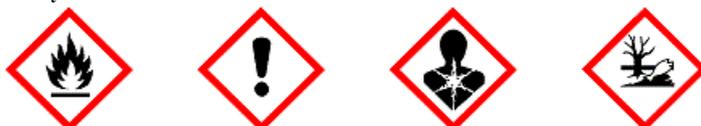
2. HAZARD IDENTIFICATION

A. GHS Classification

- Chronic aquatic toxicity : Category2
- Carcinogenicity : Category1B
- Serious eye damage/irritation : Category2
- Flammable liquids : Category3
- Skin sensitization : Category1
- Skin corrosion/irritation : Category2

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H226 Flammable liquid and vapour
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H319 Causes serious eye irritation
- H350 May cause cancer
- H411 Toxic to aquatic life with long lasting effects

o 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.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
- P243 Take precautionary measures against static discharge.
- 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.
- P281 Use personal protective equipment as required.

2) Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- 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.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- 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)

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	40 ~ 50
Talc	Talcum	14807-96-6	20 ~ 30
Cashew, nutshell liq. polymer with epichlorohydrin	-	68413-24-1	10 ~ 20
Titanium dioxide	Titanium oxide (TiO ₂)	13463-67-7	1 ~ 10
Phenol, methylstyrenated	-	68512-30-1	1 ~ 10
Propylene glycol methyl ether	1-Methoxy-2-hydroxypropane	107-98-2	1 ~ 10
Solvent naphtha (petroleum), light arom.	Naphtha	64742-95-6	1 ~ 10
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.
- 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

- 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

- Cool containers with water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- 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.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.
- The extremely low flash point made by fire-fighters may be less effective at digesting weeks.

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.
- 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.
- Do not use plastic containers.
- 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

- Wash thoroughly after handling.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Get the manual before use.
- Operators should wear antistatic footwear and clothing.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with heat, sparks, flame or other ignition sources.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- 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

- o **ACGIH TLV**
 - [Talc] : TWA 2 mg/m³, Respirable particulate matter (containing no asbestos and <1% crystalline silica)
 - [Titanium dioxide] : TWA 10 mg/m³
 - [Propylene glycol methyl ether] : TWA, 50 ppm (184 mg/m³), STEL, 100 ppm (369 mg/m³)
- o **OSHA PEL**
 - [Talc]: 20 mppcf (containing no asbestos, respirable dust), 0.1 fiber/cm³ TWA, 1.0 fiber/cm³ Excursion Limit (30 minutes)(containing asbestos)
 - [Titanium dioxide]: 15 mg/m³ (Total dust)

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

- 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 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	PURPLISH BLUE
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	Not available
G. Flash point	51 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	14% / 1%
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	> 1(Air=1)
N. Specific gravity(Relative density)	1.324 ~ 1.384
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	343 °C
Q. Decomposition temperature	Not available
R. Viscosity	89 ~ 99 KU
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

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

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
 - [Titanium dioxide] : LD50 > 10000 mg/kg Rat
 - [Propylene glycol methyl ether] : LD50 > 5000 mg/kg Rat
 - [Solvent naphtha (petroleum), light arom.] : LD50 = 8400 mg/kg Rat
 - * **Dermal**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : LD50 > 20000 mg/kg Rabbit
 - [Titanium dioxide] : LD50 > 10000 mg/kg Rabbit
 - [Propylene glycol methyl ether] : LD50 = 13000 mg/kg Rabbit
 - [Solvent naphtha (petroleum), light arom.] : LD50 > 2000 mg/kg Rabbit
 - * **Inhalation**
 - [Titanium dioxide] : LC50 > 6.82 mg/l 4 hr Rat
 - [Propylene glycol methyl ether] : LC50=54.6 mg/L/4hr Rat
 - [Solvent naphtha (petroleum), light arom.] : LC50 > 5.2 mg/L 4 hr Rat, LC50=3400 ppm 4hr
- **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**
 - [Talc] : Group 2B (Talc-based body powder (perineal use of))
 - [Talc] : Group 1 (Talc(containing asbestos fibers))
 - [Talc] : Group 3 (Talc not containing asbestos or asbestiform fibres)
 - [Titanium dioxide] : Group 2B
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [Talc] : A1 (Talc(containing asbestos fibers))
 - [Talc] : A4 (Talc(containing no asbestos fibers))
 - [Titanium dioxide] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - [Solvent naphtha (petroleum), light arom.] : Carc.1B
- **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
- [Talc] : LC50 > 100000 mg/ℓ 24 hr Brachydanio rerio
- [Solvent naphtha (petroleum), light arom.] : LC50 = 9.22 mg/ℓ 96 hr Oncorhynchus mykiss
- **Crustaceans**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : EC50 = 1.7 mg/ℓ 48 hr
 - [Talc] : LC50 = 94983.781 mg/ℓ 48 hr
 - [Titanium dioxide] : EC50 > 1000 mg/ℓ 48 hr
 - [Propylene glycol methyl ether] : EC50 > 500 mg/ℓ 48 hr
 - [Solvent naphtha (petroleum), light arom.] : EC50 = 6.14 mg/ℓ 48 hr Daphnia magna
- **Algae**
 - [Talc] : LC50 = 48545.539 mg/ℓ
 - [Solvent naphtha (petroleum), light arom.] : EC50 = 19 mg/ℓ 72 hr Selenastrum capricornutum

B. Persistence and degradability

- **Persistence**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : log Kow = 2.821 (Estimates)
 - [Talc] : log Kow = -1.50
 - [Solvent naphtha (petroleum), light arom.] : log Kow = 2.1 ~ 6 (Estimates)
- **Degradability**
 - [Solvent naphtha (petroleum), light arom.] : BOD5/COD = 0.43

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=<6.8(Exposure concentrations:1ug/l))
 - [Propylene glycol methyl ether] : BCF = 2
- **Biodegradation**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : Biodegradability = 0 (%) 28 day
 - [Propylene glycol methyl ether] : Biodegradability = 90 (%) 29 day (Aerobic, industrial sewage, Easily decomposed)

D. Mobility in soil

- Not available

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 seperatly, 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.
- High temperature incinerate
- After taking off organic solvents that are supposed to be recycled, incinerate the rest of them at a high degree.

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

- III

E. Marine pollutant

- [Solvent naphtha (petroleum), light arom.] : 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 : 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

- **POPs Management Law**
 - Not applicable
- **Information of EU Classification**
 - * **Classification**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : Xi; R36/38 R43 N; R51-53
 - [Propylene glycol methyl ether] : R10 R67
 - [Solvent naphtha (petroleum), light arom.] : Carc. Cat. 2; R45/Muta. Cat. 2; R46, Xn; R65
 - * **Risk Phrases**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : R36/38, R43, R51/53
 - [Propylene glycol methyl ether] : R10, R67
 - [Solvent naphtha (petroleum), light arom.] : R45, R65, R46
 - * **Safety Phrase**
 - [4,4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane] : S2, S28, S37/39, S61
 - [Propylene glycol methyl ether] : S2
 - [Solvent naphtha (petroleum), light arom.] : S53, S45
- **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 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

- 2013-11-28

C. Revision number and Last date revised

- 1 times, 2015-11-03

D. Other

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