

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

A. Product name

- ET5775-B

B. Recommended use and restriction on use

- General use : EPOXY FINISH
- 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

- Acute toxicity (oral) : Category4
- Acute toxicity (dermal) : Category3
- Acute toxicity (inhalation: vapor) : Category2
- Reproductive toxicity : Category1B
- Serious eye damage/irritation : Category1
- Skin sensitization : Category1
- Skin corrosion/irritation : Category1
- Respiratory sensitization : Category1

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H302 Harmful if swallowed
- H311 Toxic in contact with skin
- H314 Causes severe skin burns and eye damage
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H330 Fatal if inhaled
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H360 May damage fertility or the unborn child

o 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.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

- P284 Wear respiratory protection.
- P285 In case of inadequate ventilation wear respiratory protection.

2) Response

- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- 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.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P304+P341 IF INHALED: If breathing is difficult, 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.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P320 Specific treatment is urgent
- P321 Specific treatment
- P322 Specific measures
- P330 Rinse mouth.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.

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 : 3, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Cashew, nutshell liq. polymer with diethylenetriamine and formaldehyde	-	68413-29-6	40 ~ 50
Cashew, nutshell liq. polymer with ethylenediamine and formaldehyde	-	68413-28-5	40 ~ 50
2,4,6-Tris[(dimethylamino)methyl]phenol	2,4,6-Tris[(N,N-dimethylamino)methyl] phenol	90-72-2	1 ~ 10
N-(2-Aminoethyl)-1,2-ethanediamine	1,2-Ethanediamine, N-(2-aminoethyl)-	111-40-0	1 ~ 10
Ethylenediamine	1,2-Diaminoethane	107-15-3	1 ~ 10
Secret	Secret	-	0 ~ 1

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.
- 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.
- Remove to fresh air and keep at rest in a position comfortable for breathing.

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.
- Keep unauthorized personnel out.
- Do not access if the tank 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

- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Move container to safe area from the leak area.
- 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.
- 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.
- 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.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- 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

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Do not apply any physical shock to container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- o **ACGIH TLV**
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : TWA 1 ppm
 - [Ethylenediamine] : TWA 10 ppm

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 glove.
- o **Skin protection**

- Wear appropriate glove.
- **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid(Viscous liquid)
- Color	Clear
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	Not available
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	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)**
 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- **(Oral)**
 - Harmful if swallowed
- **(Eye-Skin)**
 - Causes serious eye damage
 - Causes severe skin burns and eye damage
 - May cause an allergic skin reaction

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

- **Acute toxicity**
 - * **Oral**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : LD50 = 1200 mg/kg Rat
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : LD50 = 1080 mg/kg Rat
 - [Ethylenediamine] : LD50 = 637 ~ 1850 mg/kg Rat
 - * **Dermal**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : LD50 = 1280 mg/kg Rat
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : LD50 = 672 mg/kg Rabbit
 - [Ethylenediamine] : LD50 = 560 mg/kg rabbit
 - * **Inhalation**
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : LC50 = 170 ppm 4 hr Rat
 - [Ethylenediamine] : LC50 = 58 mg/ℓ 4 hr Rat
- **Skin corrosion/irritation**
 - Causes severe skin burns and eye damage
- **Serious eye damage/irritation**
 - Causes serious eye damage
- **Respiratory sensitization**
 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- **Skin sensitization**
 - May cause an allergic skin reaction
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [Ethylenediamine] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - May damage fertility or the unborn child
- **STOT-single exposure**
 - Not available
- **STOT-repeated exposure**
 - Not available
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : LC50 = 447.821 mg/ℓ 96 hr
 - [Ethylenediamine] : LC50 = 220 mg/ℓ 96 hr
- **Crustaceans**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : LC50 = 28.198 mg/ℓ 48 hr
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : EC50 = 16 mg/ℓ 48 hr
 - [Ethylenediamine] : LC50 = 3 mg/ℓ 48 hr
- **Algae**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : EC50 = 34.812 mg/ℓ 96 hr

B. Persistence and degradability

- **Persistence**

- [2,4,6-Tris(dimethylamino)methyl]phenol] : log Kow = 0.77

o **Degradability**

- [Ethylenediamine] : BOD5/COD = 0.008

C. Bioaccumulative potential

o **Bioaccumulative potential**

- [2,4,6-Tris(dimethylamino)methyl]phenol] : BCF = 3.162

- [Ethylenediamine] : BCF = 0.07

o **Biodegradation**

- [Ethylenediamine] : Biodegradability = 94 (%)

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 number

- 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. Packing group

- III

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 : 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
- **Information of EU Classification**
 - * **Classification**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : Xn; R22 Xi; R36/38
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : Xn; R21/22 C; R34 R43
 - [Ethylenediamine] : R10 Xn; R21/22 C; R34 R42/43
 - * **Risk Phrases**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : R22, R36/38
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : R21/22, R34, R43
 - [Ethylenediamine] : R10, R21/22, R34, R42/43
 - * **Safety Phrase**
 - [2,4,6-Tris[(dimethylamino)methyl]phenol] : S2, S26, S28
 - [N-(2-Aminoethyl)-1,2-ethanediamine] : S1/2, S26, S36/37/39, S45
 - [Ethylenediamine] : S1/2, S23, S26, S36/37/39, S45
- **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - [Ethylenediamine] : 2267.995 kg 5000 lb
 - * **EPCRA Section 302 (40CFR355.30)**
 - [Ethylenediamine] : 4535.99 kg 10000 lb
 - * **EPCRA Section 304 (40CFR355.40)**
 - [Ethylenediamine] : 2267.995 kg 5000 lb
 - * **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

- Not applicable

D. Other

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