

SAFETY DATA SHEET

KCA 4303

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1. IDENTIFICATION

A. Product name

- KCA 4303 [SDS-720]

B. Recommended use and restriction on use

- General use : Curing agent
- Restriction on use : No data.

C. Manufacturer / Supplier / Distributor information

○ Manufacturer information

- Company name : KUMHO P&B CHEMICALS
- Address : #53, Hwanggeum 4-ro, Yangchon-eup, Gimpo-si, Gyeonggi-do, Republic of Korea
- Dept. : Production Management Team
- Telephone number : 82-31-8049-2470~2472
- Emergency telephone number : 82-31-8049-2472
- Fax number : 82-31-8049-2497
- E-mail address : epoxy_export@kpb.co.kr

○ Supplier/Distributor information

- Company name : KUMHO P&B CHEMICALS
- Address : East Wing 8F, SignitureTowers Seoul, 100 Cheonggyecheon-ro, jung-gu, Seoul, Korea
- 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

- Acute toxicity (oral) : Category4
- Acute toxicity (dermal) : Category4
- Skin corrosion/irritation : Category1A
- Serious eye damage/irritation : Category1
- Skin sensitization : Category1
- Reproductive toxicity : Category2

B. GHS label elements

○ Hazard symbols



○ Signal words

- Danger

○ Hazard statements

- H302 Harmful if swallowed
- H312 Harmful in contact with skin
- H314 Causes severe skin burns and eye damage
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H361 Suspected of damaging fertility or the unborn child

○ **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 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.
- P280 Wear protective gloves/protective clothing/eye protection/face 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.
- 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.
- P321 Specific treatment
- P330 Rinse mouth.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.

3) Storage

- 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

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Benzyl alcohol	Not available	100-51-6	40 ~ 50
3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct	Isophorone diamine adduct	2855-13-2	50 ~ 60
4,4'-(1-Methylethylidene)bisphenol polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane	-	38294-64-3	10 ~ 20

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.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Wash thoroughly after handling.

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.
- Avoid inhalation of materials or combustion by-products.
- Do not approach the tank surrounded by fire until it is extinguished.
- 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.
- 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.
- 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.
- Notify the central and local government if the emission reach the standard threshold.
- Disposal of waste shall be in compliance with the Wastes Control?Act
- 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.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Dealing only with a well-ventilated place.
- 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

- Check regularly for leaks.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- 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

- ACGIH TLV
 - Not available
- OSHA PEL
 - Not available

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**
 - 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.
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- **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 clothing.

- **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid(Viscous liquid)
- Color	Colorless transparent
B. Odor	Ammoniacal
C. Odor threshold	Not available
D. pH	9
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	> 205 °C
G. Flash point	> 93 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	45.7%/8.7%
K. Vapour pressure	13.2mmHg 20°C
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.03 at 20°C
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	300~500 cps at 25°C
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)**
 - 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**
 - Product (ATEmix) : 300mg/kg < ATEmix ≤ 2000mg/kg
 - [Benzyl alcohol] : LD50 1610 mg/kg Rat (OECD SIDS)
 - [3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct] : LD50 = 1030 mg/kg Rat (SIDS, NITE)
 - * **Dermal**
 - Product (ATEmix) : 1000mg/kg < ATEmix ≤ 2000mg/kg
 - [Benzyl alcohol] : LD50 2000 mg/kg Rabbit (SIDS, NITE)
 - * **Inhalation**
 - Product (ATEmix) : Not available
 - [Benzyl alcohol] : LC50 = 6.25 mg/ℓ 4 hr (1000ppm/8hr) Rat (HSDB)
- **Skin corrosion/irritation**
 - Causes severe skin burns and eye damage
- **Serious eye damage/irritation**
 - Causes serious eye damage
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - May cause an allergic skin reaction
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - Not available
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - Suspected of damaging 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**
 - [Benzyl alcohol] : LC50 460mg/L 96hr fathead minnow (NITE: SIDS, 2004)
- **Crustaceans**
 - [Benzyl alcohol] : EC50 230mg/L 48hr Daphnia magna (NITE: Ministry of the Environment, 1997)
 - [3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct] : EC50 = 23 mg/ℓ 48 hr (NITE)
- **Algae**
 - [Benzyl alcohol] : EC50 770mg/L 72hr (NITE: Ministry of the Environment, 1997)

B. Persistence and degradability

- **Persistence**
 - [Benzyl alcohol] : log Kow = 1.1

- [3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct] : log Kow 1.9 (estimate)
- [4,4'-(1-Methylethylidene)bisphenol polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane] : log kow 3.6 (25°C) (ECHA CHEM) log Kow 6.22 (ECHA CHEM)

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [4,4'-(1-Methylethylidene)bisphenol polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane] : 5.13 dimensionless (ECHA CHEM-QSAR) The test material was not biodegraded under the stringent conditions of this OECD ready biodegradation test, due to apparent toxicity or inhibition of the microbial inoculum caused by the test material. (OECD TG 301 F, G:P) (ECHA)

○ **Biodegradation**

- [Benzyl alcohol] : Biodegradability = 94 (%) 28 day (Aerobic, Activated Sludge)
- [3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct] : 8 (%) 28 day (Aerobic, mainly household sewage) (NITE)
- [4,4'-(1-Methylethylidene)bisphenol polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane] : 0%/28 days (OECD TG 301F, GLP) (ECHA)

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- It shall be treated by incineration

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 2735

B. Proper shipping name

- AMINES, LIQUID, CORROSIVE, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine)

C. Hazard Class

- 8

D. IMDG CODE/IATA DGR 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-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-B (Corrosive substances)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- **POPs Management Law**
 - Not applicable
- **Information of EU Classification**
 - * **Classification**
 - [Benzyl alcohol] : H332, H302
 - [3-Aminomethyl-3,5,5-trimethylcyclohexylamine ; Isophorone diamine adduct] : H312, H302, H314, H317, H412
- **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

- 2012-08-16

C. Revision number and Last date revised

- 18 times, 2020-04-01

D. Other

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