

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

UT5114-B

1. IDENTIFICATION

A. Product name

- UT5114-B

B. Recommended use and restriction on use

- General use : urethane hardener
- Restriction on use : Do not use except for purpose

C. Manufacturer / Supplier / Distributor information

Manufacturer information

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

Supplier/Distributor 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

- Flammable liquids : Category3
- Acute toxicity (oral) : Category5
- Acute toxicity (dermal) : Category5
- Acute toxicity (inhalation: vapor) : Category4
- Skin corrosion/irritation : Category3
- Respiratory sensitization : Category1
- Skin sensitization : Category1
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)

B. GHS label elements

Hazard symbols



Signal words

- Danger

Hazard statements

- H226 Flammable liquid and vapour

- H303 May harmful if swallowed.
- H313 May be harmful if contact with skin.
- H316 Cause mild skin irritation.
- H317 May cause an allergic skin reaction
- H332 Harmful if inhaled
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H335 May cause respiratory irritation.

○ Precautionary statements

1) Prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- 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/hearing protection.
- P284 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.
- P302+P312 IF ON SKIN: Call a POISON CENTER/doctor if you feel unwell.
- 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 person to fresh air and keep comfortable for breathing.
- P312 Call a POISON CENTER or doctor/physician 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.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P362+P364 Take off contaminated clothing and wash before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

3) Storage

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

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
1,6-Diisocyanatohexane homopolymer	POLY(HEXAMETHYLENE DIISOCYANATE)	28182-81-2	79 ~ 86

n-Butyl acetate	Acetic acid, butyl ester ; 1-Butyl acetate ; Butyl acetate ; Acetic acid N-butyl ester ; Butyl ethanoate ; 1-Acetoxybutane	123-86-4	13 ~ 20
4-Methylbenzenesulfonyl isocyanate	p-Toluenesulfonic acid,anhydride with isocyanic acid (7Cl,8Cl)	4083-64-1	1 ~ 6
Hexamethylene Diisocyanate	1,6-Diisocyanatohexane ; 1,6-Hexamethylene diisocyanate ; 1,6-Hexanediol diisocyanate ; 1,6-Hexylene diisocyanate ; Isocyanic acid, hexamethylene ester ; Hexane-1,6-diisocyanate	822-06-0	0.1~1

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.

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

- Take specific treatment if needed.
- When exposed to large amounts of steam and mist, move to fresh air.
- 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

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

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

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

B. Specific hazards arising from the chemical

- Cause mild skin irritation.
- Flammable liquid and vapour
- Harmful if inhaled
- May be harmful if contact with skin.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled

C. Special protective actions for firefighters

- Avoid inhalation of materials or combustion by-products.

- Cool containers with water until well after fire is out.
- Do not approach the tank surrounded by fire until it is extinguished.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep unauthorized personnel out.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.

B. Environmental precautions

- If large amounts have been spilled, inform the relevant authorities.
- Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

- Appropriate container for disposal of spilled material collected.
- Dike for later disposal.
- Disposal of waste shall be in compliance with the Wastes Control Act
- 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.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.

B. Conditions for safe storage, including any incompatibilities

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- ACGIH TLV
 - [n-Butyl acetate] : TWA 50 ppm , STEL 150 ppm
 - [Hexamethylene Diisocyanate] : TWA, 0.005 ppm (0.034 mg/m³)
- OSHA PEL
 - [n-Butyl acetate] : 150 ppm, 710 mg/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
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Consider warning properties before use.
- 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.
- Respiratory protection is ranked in order from minimum to maximum.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Eye protection
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- 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
- 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	23°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	>1
N. Specific gravity(Relative density)	1.06 ~ 1.10
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	408°C
Q. Decomposition temperature	Not available
R. Viscosity	70~75KU
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 : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with incompatible materials and condition.
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Sparks, flames, static electricity, strong acids and base substances

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
 - May cause respiratory irritation.
- Oral
 - May harmful if swallowed.
- Eye·Skin
 - Cause mild 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
 - [1,6-Diisocyanatohexane homopolymer] : LD50 > 2500 mg/kg Rat (ECHA)
 - [n-Butyl acetate] : LD50 10760 mg/kg Rat (12.2 mL/kg) (OECD TG 423) (ECHA)
 - [4-Methylbenzenesulfonyl isocyanate] : LD50 = 2234 mg/kg Rat (NLM: ChemIDplus)
 - [Hexamethylene Diisocyanate] : LD50 746 mg/kg Rat (OECD TG 401)(NIER, ECHA)
 - * Dermal
 - Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
 - [1,6-Diisocyanatohexane homopolymer] : LD50 > 2000 mg/kg Rat (ECHA)
 - [n-Butyl acetate] : LD50 > 14112 mg/kg Rabbit (> 16 mL/kg) (OECD TG 402) (ECHA)
 - [Hexamethylene Diisocyanate] : LD50 559 mg/kg Rabbir (NIER), LD50 593 mg/kg rabbit (CERI Hazard Data 2000-50 (2001))
 - * Inhalation
 - Product (ATEmix) : 10.0mg/L 4hr < ATEmix <= 20.0mg/L 4hr
 - [1,6-Diisocyanatohexane homopolymer] : Aerosol LC50 2.61 mg/L 4h Rat (ECHA)
 - [n-Butyl acetate] : Vapor LC50 > 6.6 mg/L 4 hr Rat No death Not classified (OECD TG 403, GLP) (ECHA)
 - [4-Methylbenzenesulfonyl isocyanate] : LC50 > 2.58 mg/l 4hr (>640 ppm/1hr) Rat (NLM: ChemIDplus)
 - [Hexamethylene Diisocyanate] : LC50 0.124 mg/L (124 mg/m³ 4hr) Rat (OECD TG 403, GLP)(NIER, ECHA)
- Skin corrosion/irritation
 - Cause mild skin irritation.
- Serious eye damage/irritation
 - Not available
- 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
 - Not available
- * NTP
 - Not available
- * EU CLP
 - Not available
- Germ cell mutagenicity
 - Not available
- Reproductive toxicity
 - Not available
- STOT-single exposure
 - May cause respiratory irritation.
- STOT-repeated exposure
 - Not available
- Aspiration hazard
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- Fish
 - [n-Butyl acetate] : LC50 18 mg/L 96 hr Pimephales promelas (OECD TG 203) (ECHA)
 - [Hexamethylene Diisocyanate] : LC0 Danio rerio \geq 82.8 mg/L 96h (EU Method C.1)(ECHA)
- Crustaceans
 - [n-Butyl acetate] : EC50 44 mg/L 48 hr Daphnia sp. (OECD TG 202), NOEC 23.2 mg/L 21 d Daphnia magna (OECD TG 211, GLP, Read-across CAS No. 110-19-0) (ECHA)
 - [Hexamethylene Diisocyanate] : EC50 \geq 89.1 mg/l 48 hr (NITE)
- Algae
 - [1,6-Diisocyanatohexane homopolymer] : EC50 > 1000 mg/L 72h Scenedesmus subspicatus CHODAT (ECHA)
 - [n-Butyl acetate] : EC50 392 mg/L 48 hr, NOEC 196 mg/L 48 hr Raphidocelis subcapitata (OECD TG 201, GLP) (Read-across CAS No. 110-19-0) (ECHA)
 - [Hexamethylene Diisocyanate] : EC50 >77.4 mg/l 72 hr (EU Method C.3)(ECHA)

B. Persistence and degradability

- Persistence
 - [1,6-Diisocyanatohexane homopolymer] : Log Kow 9.81 (ECHA)
 - [n-Butyl acetate] : log Pow 2.3 (25°C) (OECD TG 117, GLP) (ECHA)
 - [Hexamethylene Diisocyanate] : log Kow 1.07 (ICSC)
- Degradability
 - Not available

C. Bioaccumulative potential

- Bioaccumulative potential
 - Not available
- Biodegradation
 - [1,6-Diisocyanatohexane homopolymer] : 1%, 28d (O2 consumption) No biodegradation observed (ECHA)
 - [n-Butyl acetate] : 83 % 28 d, Readily biodegradable (OECD TG 301 D) (ECHA)
 - [Hexamethylene Diisocyanate] : 42% 28 day (Nonbiodegradable, OECD TG301F)(ECHA)

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- 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
- 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

- 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)

- 1263

B. Proper shipping name

- PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)(n-Butyl acetate)

C. Hazard Class

- 3

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-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

- [1,6-Diisocyanatohexane homopolymer] : Not applicable
- [n-Butyl acetate] : Not applicable
- [4-Methylbenzenesulfonyl isocyanate] : Not applicable
- [Hexamethylene Diisocyanate] : Not applicable

○ Information of EU Classification

* Classification

- [n-Butyl acetate] : H226,H336
- [4-Methylbenzenesulfonyl isocyanate] : H315,H319,H334,H335
- [Hexamethylene Diisocyanate] : H315,H317,H319,H331,H334,H335

○ U.S. Federal regulations

- * OSHA PROCESS SAFETY (29CFR1910.119)
 - Not applicable
- * CERCLA Section 103 (40CFR302.4)
 - [n-Butyl acetate] : 2267.995 kg 5000 lb
 - [Hexamethylene Diisocyanate] : 45.3599 kg 100 lb
 - [1,6-Diisocyanatohexane homopolymer] : Not applicable
 - [4-Methylbenzenesulfonyl isocyanate] : Not applicable
- * EPCRA Section 302 (40CFR355.30)
 - Not applicable
- * EPCRA Section 304 (40CFR355.40)
 - Not applicable
- * EPCRA Section 313 (40CFR372.65)
 - [Hexamethylene Diisocyanate] : Applicable
 - [1,6-Diisocyanatohexane homopolymer] : Not applicable
 - [n-Butyl acetate] : Not applicable
 - [4-Methylbenzenesulfonyl isocyanate] : 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

- 2016-07-26

C. Revision number and Last date revised

- 15 times, 2024-03-06

D. Other

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