SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

UT6581-B

1. IDENTIFICATION

A. Product name

- UT6581-B

B. Recommended use and restriction on use

- General use : Heavtduty Urethane Topcoat
- 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/Distributer 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 (inhalation: vapor) : Category3
- Respiratory sensitization : Category1
- Skin sensitization : Category1
- Germ cell mutagenicity : Category1B
- Carcinogenicity : Category1B
- Chronic aquatic toxicity : Category3

B. GHS label elements

○ Hazard symbols

○ Signal words

- Danger

○ Hazard statements

- H226 Flammable liquid and vapour
- H317 May cause an allergic skin reaction

- H331 Toxic if inhaled
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H340 May cause genetic defects
- H350 May cause cancer
- H412 Harmful 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, 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.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P284 In case of inadequate ventilation wear respiratory protection.

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.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P311 Call a POISON CENTER or doctor/physician.
- P321 Specific treatment (if in eyes, wash with plenty of running water; if in contact with skin, wash with plenty of running water; if inhaled, move to fresh air; if ingested, seek medical advice on whether to induce vomiting).
- 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	10 ~ 17
Solvent naphtha (petroleum), light arom.	Naphtha	64742-95-6	1 ~ 8
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.
- 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

- 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.
- Take the doctor's examination.

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.
- 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

- Flammable liquid and vapour
- Harmful to aquatic life with long lasting effects
- May cause allergy or asthma symptoms or breathing difficulties if inhaled

- May cause an allergic skin reaction
- May cause cancer

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 chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Respiratory protection is ranked in order from minimum to maximum.
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- 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.
- 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 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	38℃
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)	1.075 ~ 1.135
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	404℃
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

- 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

○ Oral

- Not available

○ Eye·Skin

- 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) : >5000mg/kg
- [n-Butyl acetate] : LD50 10760 mg/kg Rat (12.2 mL/kg) (OECD TG 423) (ECHA)
- [Solvent naphtha (petroleum), light arom.] : LD50 > 5000 mg/kg Rat (Read across 86290-81-5)(OECD TG 401,GLP)(ECHA)
- [Hexamethylene Diisocyanate] : LD50 746 ㎎/㎏ Rat (OECD TG 401)(NIER, ECHA)

* Dermal

- Product (ATEmix) : >5000mg/kg
- [n-Butyl acetate] : LD50 > 14112 mg/kg Rabbit (> 16 mL/kg) (OECD TG 402) (ECHA)
- [Solvent naphtha (petroleum), light arom.] : LD50 > 2000 mg/kg Rabbit (Read across 86290-81-5)(OECD TG 402,GLP)(ECHA)
- [Hexamethylene Diisocyanate] : LD50 559 mg/kg Rabbit (NIER)

* Inhalation

- Product (ATEmix) : 2.0mg/L 4hr < ATEmix <= 10.0mg/L 4hr
- [n-Butyl acetate] : Vapour LC50 > 21 mg/L 4hr Rat No death (OECD TG 403,GLP)(ECHA)
- [Solvent naphtha (petroleum), light arom.] : Vapour LC50 > 7.63 mg/L Rat 4hr (Read across 86290-81-5)(OECD TG 403,GLP)(ECHA)
- [Hexamethylene Diisocyanate] : Vapour LC50 0.124 mg/L 4hr Rat(OECD TG 403,GLP) (NIER,ECHA)

○ Skin corrosion/irritation

- Not available

○ 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

- [Solvent naphtha (petroleum), light arom.] : Carc. 1B (Note P)

○ Germ cell mutagenicity

- May cause genetic defects

○ Reproductive toxicity

- Not available

○ STOT-single exposure

- Not available

○ 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)

- [Solvent naphtha (petroleum), light arom.] : LL50 8.2 mg/L 96hr Pimephales promelas (Read-across Light alkylate naphtha) (EPA 66013-75-009, GLP), NOELR 2.6 mg/L 14d Pimephales promelas (Read-across Light Catalytically Reformed Naphtha) (OECD TG 204, GLP) (ECHA)

- [Hexamethylene Diisocyanate] : LC0 Danio rerio ≥82.8 mg/L 96h Danio rerio(EU Method C.1,GLP) (NIER,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)

- [Solvent naphtha (petroleum), light arom.] : EL50 4.5 mg/L 48hr Daphnia magna (Read-across straight-run light gasoline) (OECD TG 202, GLP), NOELR 2.6 mg/L 21d (Read-across Light alkylate naphtha) (OECD TG 211, GLP) (ECHA)

- [Hexamethylene Diisocyanate] : EC0 ≥ 89.1 ㎎/ℓ 48 hr Daphnia magna (EU Method C.2, GLP)(NITE,ECHA)

○ Algae

- [n-Butyl acetate] : EC50 246 mg/L 72 hr, NOEC 105 mg/L 72 hr Raphidocelis subcapitata (OECD TG 201, GLP) (Read-across CAS No. 110-19-0) (ECHA)

- [Solvent naphtha (petroleum), light arom.] : EL50 3.1 mg/L, NOELR 0.5 mg/L 72hr Selenastrum capricornutum (Read-across Blended Gasoline) (OECD TG 201, GLP) (ECHA)

- [Hexamethylene Diisocyanate] : EC50 >77.4 mg/L, NOEC 4.9mg/L 72 hr Desmodesmus subspicatus (EU Method C.3,GLP) (ECHA)

B. Persistence and degradability

○ Persistence

- [n-Butyl acetate] : log Pow 2.3 (25°C, pH ca. 7) (OECD TG 117, GLP) (ECHA)

- [Hexamethylene Diisocyanate] : log Pow 3.2 (ECHA)

○ Degradability

- Not available

C. Bioaccumulative potential

○ Bioaccumulative potential

- [Hexamethylene Diisocyanate] : BCF 59.6 (ECHA)

○ Biodegradation

- [n-Butyl acetate] : Readily biodegradable, 83 % 28 d (O2 consumption) (OECD TG 301 D) (ECHA)
- [Hexamethylene Diisocyanate] : Not readily biodegradable, 42% degradation (O2 consumption) 28day (OECD TG 301F,GLP)(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
- [Solvent naphtha (petroleum), light arom.] : Not applicable
- [Hexamethylene Diisocyanate] : Not applicable

○ Information of EU Classification

* Classification

- [n-Butyl acetate] : H226,H336
- [Solvent naphtha (petroleum), light arom.] : H304,H340,H350
- [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
- [Solvent naphtha (petroleum), light arom.] : 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
- [Solvent naphtha (petroleum), light arom.] : 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

- 2013-04-26

C. Revision number and Last date revised

- 13 times, 2025-07-02

D. Other

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