

SAFETY DATA SHEET

1. IDENTIFICATION

A. Product name

- SPORTHANE TOPCOAT [AU5306MGL922]

B. Recommended use and restriction on use

- General use : Architecture Urethane Top Coat
- Restriction on use : Do not use except for purpose

C. Supplier information

- Company name : KCC Corporation
- Address : 764, Gwahak-ro, Bongdong-eup, Wanju_Gun, Jeollabuk-do
- Emergency telephone number : 82-63-260-7000

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category5
- Acute toxicity (inhalation: vapor) : Category5
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category2A
- Reproductive toxicity : Category1B
- Specific target organ toxicity(Single exposure) : Category1
- Specific target organ toxicity(Single exposure) : Category3(Narcotic effects)
- Specific target organ toxicity(Repeated exposure) : Category1
- Aspiration hazard : Category2
- Acute aquatic toxicity : Category2
- Chronic aquatic toxicity : Category3

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H303 May harmful if swallowed.
- H305 May be harmful if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H333 May be harmful if inhaled.
- H336 May cause drowsiness and dizziness.
- H360 May damage fertility or the unborn child
- H370 Causes damage to organs(Refer Section SDS 11)
- H372 Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H401 Toxic to aquatic organisms.
- H412 Harmful 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.
- 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.
- P271 Use only outdoors or in a well-ventilated area.
- 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

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
- 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.
- P307+P311 If exposed: Call a POISON CENTER or doctor/physician.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P331 Do NOT induce vomiting.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362 Take off contaminated clothing and wash 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)

○ NFPA grade (0 ~ 4 level)

- Health : 2, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Styrene, n-butyl methacrylate, n-butyl acrylate, methyl methacrylate, 2-hydroxyethyl methacrylate, methacrylic acid copolymer	-	104318-70-9	20 ~ 30
Xylene	Dimethylbenzene	1330-20-7	20 ~ 23.5
Limestone	Calcium carbonate	1317-65-3	20 ~ 21.1
Iron h 용기 등 급oxide oxide yellow (C.I. pigment yellow 042)	FERRIC OXIDE, FERRIC HYDROXIDE, CALCIUM CARBONATE	51274-00-1	1 ~ 5.7
n-Butyl acetate	Acetic acid, butyl ester	123-86-4	1 ~ 4.6
Titanium dioxide	Titanium oxide (TiO ₂)	13463-67-7	1 ~ 4.3
1,3-Benzenedicarboxylic acid	m-Benzenedicarboxylic acid	121-91-5	1 ~ 10
1,6-Hexanediol	1,6-Hexylene glycol	629-11-8	1 ~ 10
Dimethyl carbonate	Carbonic acid, dimethyl ester	616-38-6	1 ~ 10
Polychloro copper phthalocyanine (C.I. pigment green 007)	Polychloro copper phthalocyanine	1328-53-6	1 ~ 1.3
Ethylbenzene	Benzene, ethyl-	100-41-4	0.1 ~ 0.9
Secret	Secret	자료없음	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.
- 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

- 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.
- If swallowed, large amounts of water to drink and do not induce vomiting.

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.
- Avoid inhalation of materials or combustion by-products.
- Use appropriate extinguishing measure suitable for surrounding 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

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Move container to safe area from the leak area.
- Remove all sources of ignition.
- 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.
- 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.
- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Dealing only with a well-ventilated place.
- 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

- Store according to current laws and regulations
- Keep in the original container.
- Keep sealed when not in use.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collected them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- o ACGIH TLV
 - [Xylene] : TWA 100 ppm (434 mg/m³), STEL, 150 ppm (651 mg/m³)
 - [n-Butyl acetate] : TWA 50 ppm , STEL 150 ppm
 - [Titanium dioxide] : TWA 10 mg/m³
 - [Ethylbenzene] : TWA, 20 ppm (87 mg/m³)
 - [Secret] : TWA, 5 mg/m³
 - [Secret] : TWA 0.002 mg/m³, STEL 0.005 mg/m³
 - [Secret] : TWA, 25 ppm (145 mg/m³)

- [Secret] : TWA 5 mg/m³
- [Secret] : TWA 25 ppm, STEL 50 ppm (10 mg/m³)
- [Secret] : TWA, 20 ppm (61 mg/m³)
- [Secret] : TWA 1 mg/m³ STEL 3 mg/m³
- [Secret] : TWA 10 ppm (25 mg/m³) STEL, 15 ppm (37 mg/m³)
- **OSHA PEL**
 - [Secret]:50ppm 290mg/m³
 - [Ethylbenzene]:100ppm 435mg/m³
 - [Secret]:10ppm 25mg/m³
 - [Limestone]: 15 mg/m³ (Total dust), 5 mg/m³ (Respirable fraction)
 - [Secret]: 1mg/m³
 - [Secret]:2ppm 12mg/m³
 - [Secret]: 2 mg/m³ (Inorganic compounds, except oxides), 0.1 mg/m³ (Organic compounds)
 - [Titanium dioxide]: 15 mg/m³ (Total dust)
 - [Xylene]:100ppm 435mg/m³
 - [n-Butyl acetate]:150ppm 710mg/m³
 - [Secret]:100ppm 300mg/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

- 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 vaporcartridge(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.

○ 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
- Color	Not available
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(Relative density)	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 be harmful if swallowed and enters airways
- (Oral)
 - May harmful if swallowed.
- (Eye·Skin)
 - Causes serious eye irritation
 - Causes skin irritation

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
 - [Xylene] : LD50=3523 mg/kg rat (EU Method B1)
 - [Iron h용기 등 급roxide oxide yellow (C.I. pigment yellow 042)] : LD50 >10000 mg/kg Rat (ECHA)
 - [n-Butyl acetate] : LD50 12.2 ml/kg Rat (ECHA)
 - [Titanium dioxide] : LD50 > 10000 mg/kg Rat (HSDB)
 - [1,3-Benzenedicarboxylic acid] : LD50 > 5000 mg/kg Rat
 - [1,6-Hexanediol] : LD50 = 3000 mg/kg Rat

- [Dimethyl carbonate] : LD50 = 13000 mg/kg Rat
- [Polychloro copper phthalocyanine (C.I. pigment green 007)] : LD50 > 3000 mg/kg Rat (IUCLID)
- [Ethylbenzene] : LD50 = 3500 mg/kg Rat (NITE)
- [Secret] : LD50 = 11000 mg/kg Rat (NITE)
- [Secret] : LD50 > 5000 mg/kg Rat
- [Secret] : LD50 > 6400 mg/kg Rat (ECHA) LDLo 3200 mg/kg (ChemIDplus)
- [Secret] : LD50 = 1530 mg/kg Rat (OECD SIDS)
- [Secret] : LD50 > 5000 mg/kg Rat (NITE)
- [Secret] : LD50 = 4200~11300 mg/kg Rat (NTP TR 518, 2004)
- [Secret] : LD50 7712 mg/kg Rat (ECHA)
- [Secret] : LD50 > 5000 mg/kg Rat (ECHA)
- [Secret] : LD50 = 5000 mg/kg Rat (BASF Canada Inc.)
- [Secret] : LD50 = 2369 mg/kg Rat (IUCLID)
- [Secret] : LD50 = 3430 mg/kg rabbit (GLP, ECHA)
- [Secret] : LD50 > 90000 mg/kg Rat (KOSHA)
- [Secret] : LD50 = 58 ~ 5000 mg/kg Rat (OECD SIDS)
- [Secret] : LD50 = 8532 mg/kg Rat (IUCLID)
- [Secret] : LD50 22,000 mg/kg Rat (ECHA)
- [Secret] : LD50 2600 mg/kg 실험종 : Rat (원문 : 1.7 ml/100g 암컷, OECD Guideline 423)
- [Secret] : LD50 = 3310 mg/kg Rat (NITE)
- [Secret] : LD50 = 1700 mg/kg Rat (HSDB, IUCLID)
- [Secret] : LD50 > 5000 mg/kg Rat (IUCLID)

*** Dermal**

- Product (ATEmix) : >5000mg/kg
- [Xylene] : LD50 >4350 mg/kg Rabbit (IUCLID) LD50 12126 mg/kg Rabbit (isomer: m-xylene)
- [n-Butyl acetate] : LD50 > 16 mL/kg Rabbit (ECHA)
- [Titanium dioxide] : LD50 > 10000 mg/kg Rabbit (IUCLID)
- [1,3-Benzenedicarboxylic acid] : LD50 > 2000 mg/kg Rabbit
- [1,6-Hexanediol] : LD50 > 10000 mg/kg Rabbit
- [Dimethyl carbonate] : LD50 = 5000 mg/kg Rabbit
- [Ethylbenzene] : LD50 = 15400 mg/kg Rabbit (NITE)
- [Secret] : LD50 > 4000 mg/kg Guinea pig (ECHA)
- [Secret] : LD50 >3160 mg/kg Rabbit (IUCLID)
- [Secret] : LD50 > 2000 mg/kg Rat (SIDS)
- [Secret] : LD50 >2,000 mg/kg Rabbit (NTP TR 518, 2004)
- [Secret] : LD50 >3500 mg/kg Mouse (ECHA)
- [Secret] : LD50 > 2000 mg/kg rabbit (ECHA)
- [Secret] : LD50 = 3400 mg/kg rabbit (HSDB)
- [Secret] : LD50 = 777 ~ 2000 mg/kg rabbit (OECD SIDS)
- [Secret] : LD50 > 5000 mg/kg Rabbit (IUCLID)
- [Secret] : LD50 20,800 mg/kg Rabbit (HSDB, IUCLID)
- [Secret] : LD50 = 1060 mg/kg rabbit (NITE)
- [Secret] : LD50 > 5000 mg/kg Rabbit (HSDB, IUCLID)
- [Secret] : LD50 > 2000 mg/kg Rabbit (IUCLID)

*** Inhalation**

- Product (ATEmix) : 20.0mg/L < ATEmix <= 50.0mg/L
- [Xylene] : LC50 5922 ppm 4 hr Rat (25.713 mg/L EPA OPP 81-3, GLP)
- [Iron h용기 등급roxide oxide yellow (C.I. pigment yellow 042)] : LC50 5.05 mg/ℓ 4 hr Rat (OECD Guideline 403, GLP)(ECHA)
- [n-Butyl acetate] : LC50 > 4.9 mg/ℓ 4 hr Rat (ECHA)
- [Titanium dioxide] : LC50 >3.43 mg/ℓ Rat (OECD TG 403)
- [1,3-Benzenedicarboxylic acid] : dust LD50 > 11.37 mg/L Rat
- [Dimethyl carbonate] : LC50 = 140 mg/ℓ 4 hr Rat
- [Ethylbenzene] : LC50 = 17.4 mg/L/4 hr Rat (4000 ppm/4hr)(EHC, ASTDR)

- [Secret] : LC50 = 7.7 mg/ℓ 4 hr Rat (NITE)
- [Secret] : dust LC50 > 0.29 mg/L 4 hr Rat
- [Secret] : LC50 > 2.14 mg/ℓ 4 hr Rat (OECD TG 403, GLP) (ECHA)
- [Secret] : LC50 > 2.5 mg/ℓ 6 hr Rat
- [Secret] : gas (Not applicable: Solid)
- [Secret] : LC50 > 4.96 mg/L/4hr (ECHA)
- [Secret] : Steam LC50 = 24.25 mg/L/4 hr Rat (HSDB)
- [Secret] : Mist LC50 = 0.059 ~ 22 mg/L Rat (OECD SIDS)
- [Secret] : Steam LC50 = 28.8 mg/L/4 hr Rat (KOSHA)
- [Secret] : 분진 LC50 0.9615 mg/ℓ 4 hr Rat (원문 : 3,846 mg/m³/1H) (SIDS(2011))
- [Secret] : Steam LC50 36.9 mg/L/4 hr Rat (IUCLID)
- [Secret] : LC50 = 39.3 mg/L/4 hr Rat (NLM)
- [Secret] : LC50 > 0.0065 mg/L/4 hr Rat (>0.026 mg/L/1hr)(HSDB)
- **Skin corrosion/irritation**
 - Causes skin irritation
- **Serious eye damage/irritation**
 - Causes serious eye irritation
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - [Secret] : Group 3
 - [Ethylbenzene] : Group 2B
 - [Titanium dioxide] : Group 2b * IARC(국제 암 연구기관)는 TiO₂를 인체 발암 가능성이 있다고 분류했지만 IARC의 TiO₂ 발암성 관련 연구논문에서 도료같은 물질에 포함되어 있을 경우 심각한 노출이 발생되지 않을것으로 판단하였으며 NIOSH(미국 국립산업안전 보건연구원)에서는 100nm 미만의 초미세 TiO₂를 사용한 만성 동물 흡입 연구 결과에서만 암이 증가하였다는 연구논문이 있음. 따라서 본 제품에 사용하는 TiO₂의 입자크기는 280~360nm 수준으로 암이 발생할 수 있다고 판단하기 어려움.
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [Secret] : A4
 - [Ethylbenzene] : A3
 - [Titanium dioxide] : A4
 - [Xylene] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - [Secret] : Carc.1B
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - May damage fertility or the unborn child
- **STOT-single exposure**
 - Causes damage to organs(Refer Section SDS 11)
 - May cause drowsiness and dizziness.
- **STOT-repeated exposure**
 - Causes damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- **Aspiration hazard**
 - May be harmful if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [Xylene] : LC50=3.3mg/L 96 hr (NITE)
- [n-Butyl acetate] : LC50 18 mg/ℓ 96 hr Pimephales promelas (OECD TG 203)(ECHA)
- [Titanium dioxide] : LL50 >100 mg/ℓ 96 hr Oryzias latipes(OECD TG 203)
- [1,3-Benzenedicarboxylic acid] : LC50 1000 mg/ℓ 96 hr Leuciscus idus (IUCLID)
- [1,6-Hexanediol] : LC50 = 460 ~ 1000 mg/ℓ 96 hr Leuciscus idus (OECD Screening Information Data Set)
- [Polychloro copper phthalocyanine (C.I. pigment green 007)] : LC50 = 355.6 mg/ℓ 96 hr Salmo gairdneri (SIDS)
- [Ethylbenzene] : LC50 5.1 mg/ℓ 96 hr (ECHA)
- [Secret] : LC50 = 97 mg/ℓ 96 hr
- [Secret] : LC50 1000 mg/ℓ 96 hr Oryzias latipes (OECD SIDS)
- [Secret] : LC50 > 1000 mg/ℓ 96 hr Oryzias latipes (Estimate)
- [Secret] : LC50 = 140 mg/ℓ 96 hr (SIDS)
- [Secret] : LC50 = 11800 mg/ℓ 96 hr
- [Secret] : LC50 = 8050 mg/ℓ 96 hr Pimephales promelas (ECOTOX)
- [Secret] : LC50 = 0.97 mg/ℓ 96 hr Lepomis macrochirus (IUCLID)
- [Secret] : LC50 1376 mg/ℓ 96 hr Pimephales promelas(OECD TG 203, GLP)
- [Secret] : LC50 0.996 mg/ℓ 96 hr
- [Secret] : LC50 6328.303 mg/ℓ 96 hr (Estimate)
- [Secret] : LC50 3 mg/ℓ 96 hr Brachydanio rerio (OECD SIDS)
- [Secret] : LC50 100 mg/ℓ 96 hr Oryzias latipes (SIDS)
- [Secret] : LC50 = 710 mg/ℓ 96 hr Oncorhynchus mykiss (ECOTOX)
- [Secret] : ECHA LC50 >1000 mg/ℓ 96 hr Oncorhynchus mykiss(OECD TG 203, GLP)
- [Secret] : LC50 = 180 mg/ℓ 96 hr Lepomis macrochirus (ECOTOX)
- [Secret] : LC50 4.8 mg/ℓ 96 hr Brachydanio rerio (OECD SIDS)
- [Secret] : LC50 99.078 mg/ℓ 96 hr (Estimate)

○ **Crustaceans**

- [n-Butyl acetate] : EC50 44 mg/ℓ 48 hr Daphnia magna (ECHA)
- [Titanium dioxide] : EC50 >100 mg/ℓ 48 hr Daphnia magna(48h-EL50Daphnia magna>100 mg/L, 48h-EC50>100, 48h-EC10=91.2 mg/L, OECD TG 202)
- [1,3-Benzenedicarboxylic acid] : LC50 1000 mg/ℓ 48 hr Daphnia magna (IUCLID)
- [1,6-Hexanediol] : EC50 = 500 mg/ℓ 48 hr Daphnia magna (OECD Screening Information Data Set)
- [Polychloro copper phthalocyanine (C.I. pigment green 007)] : EC50 = 153.6 mg/ℓ Daphnia magna (SIDS)
- [Ethylbenzene] : LC50 2.4 mg/ℓ ~ 1.8 mg/ℓ 48 hr Mysidopsis bahia(EC50 48hr >5.2mg/L, EPA 1985, GLP)
- [Secret] : EC50 = 46 mg/ℓ 48 hr (NITE)
- [Secret] : LC50 = 13000 mg/ℓ 48 hr Daphnia magna (OECD SIDS)
- [Secret] : LC50 = 3908.954 mg/ℓ 48 hr (Estimate)
- [Secret] : LC50 = 65 mg/ℓ 24 hr
- [Secret] : EC50 = 609.98 mg/ℓ 48 hr
- [Secret] : ECHA LC50 >100 mg/ℓ 48 hr Daphnia magna(OECD Guideline 202, GLP)
- [Secret] : EC50 = 20 mg/ℓ 24 hr (IUCLID)
- [Secret] : EC50 = 1983 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : LC50 0.110 mg/ℓ 48 hr
- [Secret] : LC50 6054.625 mg/ℓ 48 hr (Estimate)
- [Secret] : EC50 0.21 mg/ℓ 48 hr Daphnia magna (OECD SIDS)
- [Secret] : EC50 = 373 mg/ℓ 48 hr Daphnia magna (SIDS)
- [Secret] : EC50 = 1000 mg/ℓ 48 hr Daphnia magna (ECOTOX)
- [Secret] : EC50 >100 mg/ℓ 48 hr Daphnia magna (ECHA)
- [Secret] : EC50 3.2 mg/ℓ 48 hr Daphnia magna (OECD SIDS)
- [Secret] : EC50 240.369 mg/ℓ 48 hr (Estimate)
- [Secret] : ECHA EC50 >300.82 mg/ℓ 48 hr Daphnia magna(OECD TG 202, GLP)
- [Secret] : EC50 = 860 mg/ℓ 48 hr Daphnia magna (ECOTOX)

○ **Algae**

- [Titanium dioxide] : ErL50 >100 mg/ℓ 72 hr (Pseudokirchneriella subcapitata, 72h-ErL50 Pseudokirchneriella subcapitata >100 mg/L growth rate, static, 72h-EyL50 >100 mg/L static, OECD TG 201)
- [1,3-Benzenedicarboxylic acid] : EC50 1000 mg/ℓ 96 hr Scenedesmus subspicatus (IUCLID)
- [1,6-Hexanediol] : EC50 = 2200 mg/ℓ 72 hr Scenedesmus subspicatus (OECD Screening Information Data Set)
- [Ethylbenzene] : EC50 3.6 mg/ℓ 96 hr (EPA 1985, GLP)
- [Secret] : EC50 1000 mg/ℓ 96 hr Selenastrum capricornutum (OECD SIDS)
- [Secret] : EC50 = 2198.166 mg/ℓ 96 hr (Estimate)
- [Secret] : EC50 = 68 mg/ℓ 72 hr (MOE Eco-Toxicity Tests of Chemicals, 2003)
- [Secret] : EC50 = 169 mg/ℓ 96 hr (NITE)
- [Secret] : EC50 = 6500 ~ 13000 mg/ℓ 96 hr Selenastrum capricornutum (IUCLID)
- [Secret] : EC50 = 0.017 mg/ℓ 96 hr (Estimate)
- [Secret] : EC50 225 mg/ℓ 96 hr Selenastrum capricornutum(OECD TG 201, GLP)
- [Secret] : EC50 0.615 mg/ℓ 96 hr
- [Secret] : EC50 0.56 mg/ℓ 72 hr (OECD SIDS)
- [Secret] : EC50 1000 mg/ℓ 72 hr Selenastrum capricornutum (SIDS)
- [Secret] : EC50 3444.191 mg/ℓ 96 hr (Estimate)
- [Secret] : EC50 = 1000 mg/ℓ 72 hr Selenastrum capricornutum (NITE)
- [Secret] : EC50 >100 mg/ℓ 72 hr 7}E}(Desmodesmus subspicatus) (ECHA)
- [Secret] : EC50 117.631 mg/ℓ 96 hr (Estimate)
- [Secret] : ECHA EC50 >1000 mg/ℓ 72 hr Skeletonema costatum(ISO 10253, GLP)

B. Persistence and degradability

○ **Persistence**

- [Xylene] : log Kow=3.16 (NITE)
- [n-Butyl acetate] : 2.3 log Kow (25 °C, OECD TG 117)
- [1,3-Benzenedicarboxylic acid] : log Kow = 1.66
- [1,6-Hexanediol] : log Kow = -0.106 (Corporate Solution From Thomson Micromedex)
- [Polychloro copper phthalocyanine (C.I. pigment green 007)] : log Kow = 17.4 (SIDS)
- [Ethylbenzene] : log Kow 3.6 (ECHA)
- [Secret] : log Kow = -0.5 (ICSC)
- [Secret] : log Kow = 0.16
- [Secret] : log Kow = 1.6 (ICSC)
- [Secret] : log Kow 2.56 (SRC)
- [Secret] : log Kow = -1.93 (ICSC)
- [Secret] : log Kow = 4.47 (Estimate)
- [Secret] : log Kow = 0.37 (at 25 °C) (IUCLID)
- [Secret] : log Kow 1 (OECD TG 117)
- [Secret] : log Kow 5.14 (Estimate)
- [Secret] : log Kow = -1.38
- [Secret] : log Kow 0.36 (Estimate)
- [Secret] : log Kow = 0.97 (11.43) (NLM)
- [Secret] : log Kow = 0.43 (IUCLID)
- [Secret] : log Kow = -1.4 (IUCLID)
- [Secret] : log Kow -0.17 (Howard, 1997)
- [Secret] : log Kow = 1.87 (NLM/HSDB)
- [Secret] : log Kow 0.8 (NLM)
- [Secret] : log Kow 4.57

○ **Degradability**

- [1,3-Benzenedicarboxylic acid] : (85.3% decomposed after 14 days)
- [1,6-Hexanediol] : BOD5/COD = 0.6 (IUCLID)
- [Secret] : BOD = 0.78 COD = 1.19 BOD/COD= 0.66 (IUCLID)

C. Bioaccumulative potential

o Bioaccumulative potential

- [1,3-Benzenedicarboxylic acid] : BCF = 2 (HSDB)
- [1,6-Hexanediol] : BCF = 3.162 (Estimate)
- [Polychloro copper phthalocyanine (C.I. pigment green 007)] : BCF = 2.1 (SIDS)
- [Ethylbenzene] : BCF 1
- [Secret] : BCF = 0.3 ~ 0.5 (fish 10 mg/L, 42day)
- [Secret] : BCF = 0.4 ~ 42 ((25 °C), Cyprinus carpio(Fish, fresh water), 2.5mg/l)
- [Secret] : BCF = 200 (IUCLID)
- [Secret] : BCF = 17.43 (Estimate)
- [Secret] : BCF = 1351 (Estimate)
- [Secret] : BCF 180.1 (Estimate)
- [Secret] : BCF = 31 (NLM)
- [Secret] : BCF 100 (Estimate)
- [Secret] : BCF < 1 (SIDS)
- [Secret] : BCF = 21 (ECOTOX)

o Biodegradation

- [Xylene] : 39 (%) (NITE)
- [n-Butyl acetate] : 83% 28 day (OECD TG 301D) (ECHA)
- [1,6-Hexanediol] : Biodegradability = 98 (%) 28 day (IUCLID)
- [Ethylbenzene] : 70-80% 28 day (ISO 14593 CO2, GLP)
- [Secret] : Biodegradability = 81 (%) (NITE)
- [Secret] : Biodegradability = 100 (%) 28 day (IUCLID)
- [Secret] : < 5% (35days)
- [Secret] : Biodegradability = 85.2 (%) (Existing chemicals safety exam data)
- [Secret] : Biodegradability = 91 (%) 28 day (Aerobic, Activated Sludge, Decomposes very well)
- [Secret] : Biodegradability = 89 (%) 20 day (IUCLID)
- [Secret] : Biodegradability = 38 (%) 28 day (IUCLID)
- [Secret] : 92% 20 days (ECHA)
- [Secret] : Biodegradability > 60 (%) 28 day (OECD Screening Information Data Set)
- [Secret] : Biodegradability > 60 (%) 10 day (SIDS)
- [Secret] : 96% 20 day(ECHA), Biodegradability = 74 (%) (NITE)
- [Secret] : Biodegradability = 99.5 (%) 7 day (IUCLID)
- [Secret] : 41 ~ 42 (%) 28 day (OECD SIDS)

D. Mobility in soil

- [Xylene] : log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)
- [1,6-Hexanediol] : Koc = 1
- [Secret] : ECHA 1 Koc (Epiwin calculation)
- [Secret] : Koc = 869 (Low potential for soil adsorption, Estimates)
- [Secret] : 1.153 Koc (TGD guideline, QSAR)(ECHA)
- [Secret] : Koc 1.302

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, 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.

B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates 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

- II

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.

- Air transport(IATA): This product is NOT classified as dangerous for IATA Transport.

- 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

o Information of EU Classification

* Classification

- [Secret] : H314

- [Xylene] : H226,H332,H312,H315

- [Ethylbenzene] : H225,H332

- [Secret] : H226,H302,H335,H315,H318,H336

- [Secret] : H302

- [Secret] : H226,H335

- [Secret] : H226,H314

- [Secret] : H302,H335,H315,H318,H334,H317

- [Dimethyl carbonate] : H225

- [n-Butyl acetate] : H226,H336,

- [Secret] : H319

- [Secret] : H226

- [Secret] : H350,H340,H304

o U.S. Federal regulations

* OSHA PROCESS SAFETY (29CFR1910.119)

- Not applicable
- * **CERCLA Section 103 (40CFR302.4)**
 - [Xylene] : 45,3599 kg 100 lb
 - [n-Butyl acetate] : 2267.995 kg 5000 lb
 - [Ethylbenzene] : 453.599 kg 1000 lb
 - [Secret] : 2267.995 kg 5000 lb
- * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
- * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
- * **EPCRA Section 313 (40CFR372.65)**
 - [Xylene] : Applicable
 - [Ethylbenzene] : Applicable
 - [Secret] : Applicable
- o **Rotterdam Convention listed ingredients**
 - Not applicable
- o **Stockholm Convention listed ingredients**
 - Not applicable
- o **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

- 2013-07-03

C. Revision number and Last date revised

- 2 times, 2019-04-04

D. Other

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