물질안전보건자료
(Material Safety Data Sheet)

Name of the product	OPTICAL CLEAR 무광 (UT & TR)(N)

1. Information on chemical products and companies.

A. Product name.	OPTICAL CLEAR 무광 (UT & TR)(N)
B. The recommended use of the product and restrictions on its use.	
Recommended use of the product.	General industrial usage fee.
Restrictions on the use of the product.	Prohibition of use other than intended use.
C. Supplier information (in the case of imported goods, information on domestic suppliers that can be contacted urgently)	
Corporate name	Geumgang Paint Industrial Co., Ltd.
Address	86-75 Chugok-gil, Gogyeong-myeon, Yeongcheon-si, Gyeongsangbuk-do.
Emergency phone number.	054 338 7722

2. Hazardous and dangerous.

A.Hazardous and Hazardous Classification	Flammable liquid: Classification 2. Acute toxicity (transdermal): classification 4. Acute toxicity (Inhalation: Steam): Classification 4. Skin corrosiveness/skin irritation: 2nd classification Severe eye damage/eye irritation: Distinction 2. Carcinogenicity: Classification 1B Reproductive cell variability: Classification 1B Specific target organ toxicity (1 exposure): classification 3 (respiratory stimulation) Specific target organ toxicity (1 exposure): classification 3 (anesthesia) Specific target organ toxicity (repeated exposure): Classification 1. Hazard of aspiration: Classification 1. Chronic Aquatic Environment Harmfulness: Classification 3
B. Items of warning signs including precautionary measures.	B. Items of warning signs including precautionary measures.
Picture writing.	Picture writing.
	
Signal language.	Dangerous.
Hazardous and dangerous phrases.	H225 Highly flammable liquids and vapors. H304 can be fatal if swallowed and introduced into the airways It's harmful when it comes into contact with H312. H315 causes irritation to the skin. H319 causes severe irritation to the eyes. H332 It's harmful if you inhale it. H335 Can cause respiratory irritation H336 Can cause drowsiness or dizziness H340 Can cause genetic defects Can cause H350 cancer H372 prolonged or repeated exposure causes damage to the body (...). H412 Harmful to aquatic organisms due to long-term effects
Preventive measures.	
Prevention	Get the P201 pre-use instruction manual. P202 Do not handle all safety precautions until you read and understand them. P210 Stay away from heat, spark, flame, and high heat - No smoking Seal the P233 container tightly.

Prevention	Bond or ground the P240 container and the accommodation facility. P241 Use electricity, ventilation, lighting, (...), and equipment to prevent explosion. Use only tools that do not cause P242 sparks. P243 Take antistatic measures. Do not inhale P260 (dust, fume, gas, mist, steam, spray). Avoid inhalation of P261 (dust, fume, gas, mist, steam, spray). After handling P264, wash the handling area thoroughly. P270 Do not eat, drink, or smoke when using this product. P271 Only handle outdoors or in well ventilated places. Do not discharge to the P273 environment. Wear P280 (protective gloves, protective clothing, protective goggles, facial protective equipment).
Response	P301+P310 If swallowed, see a medical institution (doctor) immediately. If it gets on your skin, wash it with a large amount of water/(...). P303+P361+P353 If it gets on your skin (or hair), take off all contaminated clothing. Wash your skin with water/shower. When inhaled P304+P340, move to a place with fresh air and relax in an easy-to-breathe position. P305+P351+P338 If it gets on your eyes, wash it carefully with water for a few minutes. Remove contact lenses if possible. Keep washing up. P308+P313 If you are exposed or concerned about exposure, seek medical action or advice. P312 If you feel uncomfortable, see a medical institution (doctor). P314 If you feel uncomfortable, seek medical measures and advice. Treat P321 (…). P331 Don't make me vomit. P332+P313 If skin irritation occurs, seek medical measures and advice. P337+P313 If irritation persists, seek medical measures and advice. Remove P362+P364 contaminated clothing and wash it before use again. P370+P378 To extinguish the fire in the event of a fire (…Use) as in .
Storage	Store the P403+P233 container tightly sealed in a well-ventilated place. Store P403+P235 in a well-ventilated place and keep it at low temperatures. Store in a storage with a P405 lock.
Scrap it.	Discard P501 (according to the provisions of the relevant laws and regulations).

3. Name and content of components

Material name	Nomenclature (tolerance)	CAS number	content (%)
Thermosetting acrylic resin	-	-	10 ~ 20
Polyester resin	-	-	10 ~ 20
솔벤트 나프타 (석유), 경질 방향족화합물(SOLVENT NAPHTHA (PETROLEUM). LIGHT AROMATIC)	방향족 나프타, 타입 I(Aromatic naphtha, type I)	64742-95-6	1 ~ 10
Methyl isobutyl ketone.	Hexon. Hexone	108-10-1	1 ~ 10
Butyl acetate.	Normal butyl acetate n-butyl acetate	123-86-4	10 ~ 20
Xylene.	Xylene (Orto, Meta, Paray adult) Dimethylbenzene (ortho, meta, para-isomer) Xylene, o,m,p-isomers Xylene(o,m,p-isomers)	1330-20-7	1 ~ 10
Ethylbenzene.	Ethyl benzene. Ethyl benzene	100-41-4	1 ~ 10
Propylene glycol monomethyl ether acetic acid.	1-메톡시-2-프로판올 아세트산(1-METHOXY-2-PROPANOL ACETATE);	108-65-6	1 ~ 10
메틸 글루타르산(METHYL GLUTARATE)	글루타르산, 다이메틸 에스테르 (PENTANEDIOIC ACID, DIMETHYL ESTER);	1119-40-0	1 ~ 10
Silicon oxide.	SILICA	7631-86-9	10 ~ 20

4. First aid tips.

A. When it goes into your eyes.	Get medical treatment.
	Wash your skin and eyes under running water for at least 20 minutes immediately upon contact with a substance.
	Wash your eyes carefully with water for a few minutes. Remove contact lenses if possible. Keep washing up.
	If eye irritation persists, seek medical measures and advice.
B. When I touch my skin,	For hot substances, soak or wash the affected area in a large amount of cold water to remove heat.
	Get medical treatment.
	Remove contaminated clothes and shoes and isolate contaminated areas.
	Wash your skin and eyes under running water for at least 20 minutes immediately upon contact with a substance.
	Prevent the spread of contaminated areas in case of minor skin contact.
	In the case of burns, immediately cool the area with cold water as long as possible, and do not remove clothes that stick to the skin.
	Wash your skin with soap and water.
	Take off or remove all contaminated clothing if it gets on your skin (or hair). Wash your skin with water/shower.
	Take off all contaminated clothing if it gets on your skin (or hair). Wash your skin with water/shower.
	If you feel uncomfortable, see a medical institution (doctor).
	If you feel uncomfortable, seek medical measures and advice.
	If skin irritation occurs, seek medical measures and advice.
	Remove contaminated clothing and wash it before use again.
C. When you inhale it.	If exposed to excess dust or fume, remove it with clean air and take medical measures if you have cough or other symptoms.
	Move to a place with fresh air.
	Get medical treatment.
	If you don't breathe, do artificial respiration.
	If you can't breathe well, supply oxygen.
	Please make it warm and stable.
	If you are exposed or concerned about exposure, seek medical measures and advice.
	See a medical institution (doctor).
	If you feel uncomfortable, seek medical measures and advice.
	Don't make me vomit.
D. When you eat it was...	Get medical treatment.
	If you eat or inhale a substance, do not breathe artificially with oral codification and use appropriate respiratory equipment.
	If swallowed, see a medical institution (doctor) immediately.
	If you are exposed or concerned about exposure, seek medical measures and advice.
	If you feel uncomfortable, seek medical measures and advice.
	Don't make me vomit.
E. Other doctor's precautions.	Contact your medical staff in case of disclosure and take special emergency measures such as follow-up.
	Symptoms of contact and inhalation may be delayed.
	Ensure that medical personnel are aware of the substance and take protective measures.

5. How to deal with an explosion or a fire.

A. Appropriate (inappropriate) digestive medicine.	
Appropriate (inappropriate) digestive medicine.	Use alcohol foam, carbon dioxide or water spray for digestion related to this substance.
	Use dry sand or soil for choking digestion.
B. Specific hazards from chemicals.	

B. Specific hazards from chemicals.	
	It can decompose at high temperatures and produce toxic gases.
	It can cause fire and explosion by violently polymerizing.
	Steam can be transferred to the ignition source and ignited.
	Stimulating and very toxic gas may be generated by pyrolysis or combustion during burning.
	Can form explosive mixtures at or above flashpoints.
	Container can explode when heated.
	High flammability: easily ignited by heat, spark, and flame
	Leakage is at risk of fire/explosion.
	There's a risk of steam explosion indoors, outdoors, and in sewers.
	Some of them can burn, but they don't ignite easily.
	Steam can form an explosive mixture with air.
	Steam can move to the ignition source and flash back
	Non-flammable, the material itself does not burn, but it may decompose when heated and cause corrosive/toxic fume.
	Steam can cause dizziness or suffocation without awareness.
	In case of fire, irritating, corrosive, and toxic gases can be generated.
	Inhalation and contact can irritate the skin and eyes or cause burns.
	It can be toxic when inhaling and absorbing the skin.
	Highly flammable liquids and vapors.
	Flammable liquids and vapors.
C. Protective equipment and preventive measures to wear when extinguishing a fire.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	The rescuer should wear proper protective gear.
	Get out of the area and maintain a safe distance.
	It's lighter than most water, so be careful.
	Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces.
	It can be carried in a hot state, so be careful.
	If it's not dangerous, move the container from the fire area.
	In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment.
	In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire.
	In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored.
	In case of tank fire, step back from the tank covered in flames.
	In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Methyl isobutyl ketone.	The rescuer should wear proper protective gear.
	Get out of the area and maintain a safe distance.
	It's lighter than most water, so be careful.
	Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces.
	If it's not dangerous, move the container from the fire area.
	Do not directly inject it into the exposure source or safety device because it may freeze in the event of a tank fire.
	In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment.
	In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire.
	In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored.
	In case of tank fire, step back from the tank covered in flames.
	In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Butyl acetate.	The rescuer should wear proper protective gear.
	Get out of the area and maintain a safe distance.
	It's lighter than most water, so be careful.

Butyl acetate.	Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces. In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment. In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire. In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored. In case of tank fire, step back from the tank covered in flames. In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Xylene.	The rescuer should wear proper protective gear. Get out of the area and maintain a safe distance. It's lighter than most water, so be careful. Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces. If it's not dangerous, move the container from the fire area. In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment. In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire. In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored. In case of tank fire, step back from the tank covered in flames. In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Ethylbenzene.	The rescuer should wear proper protective gear. Get out of the area and maintain a safe distance. It's lighter than most water, so be careful. Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces. In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment. In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire. In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored. In case of tank fire, step back from the tank covered in flames. In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Propylene glycol monomethyl ether acetic acid.	The rescuer should wear proper protective gear. Get out of the area and maintain a safe distance. It's lighter than most water, so be careful. Since most steam is heavier than air, it can diffuse along the ground and accumulate in low or confined spaces. If it's not dangerous, move the container from the fire area. Do not directly inject it into the exposure source or safety device because it may freeze in the event of a tank fire. In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment. In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire. In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored. In case of tank fire, step back from the tank covered in flames. In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
METHYL GLUTARATE	The rescuer should wear proper protective gear. Get out of the area and maintain a safe distance. It can melt and be transported, so be careful.

	Dig a ditch to dispose of the digestive water and trap it so that the substance doesn't scatter.
	If it's not dangerous, move the container from the fire area.
	In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment.
	In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire.
METHYL GLUTARATE	In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored.
	In case of tank fire, step back from the tank covered in flames.
	In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
Silicon oxide.	Get out of the area and maintain a safe distance.
	It can melt and be transported, so be careful.
	Dig a ditch to dispose of the digestive water and trap it so that the substance doesn't scatter.
	If it's not dangerous, move the container from the fire area.
	In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment.
	In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire.
	In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored.
	In case of tank fire, step back from the tank covered in flames.
	In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.
POLYETHYLENE.	Get out of the area and maintain a safe distance.
	It can melt and be transported, so be careful.
	Dig a ditch to dispose of the digestive water and trap it so that the substance doesn't scatter.
	If it's not dangerous, move the container from the fire area.
	In the event of a tank fire, extinguish it from the maximum distance or use unmanned fire extinguishing equipment.
	In the event of a tank fire, cool the container with a large amount of water even after extinguishing the fire.
	In the event of a tank fire, step back immediately if there is a high pitch in the pressure discharge device or if the tank is discolored.
	In case of tank fire, step back from the tank covered in flames.
	In the event of a tank fire, use unmanned fire extinguishing equipment and, if impossible, allow it to burn away.

6. How to deal with leakage accidents.

A. Measures and protective equipment necessary to protect the human body.	Remove all ignition sources as very fine particles can cause fire or explosion.
	Wipe off the spilled immediately and follow the precautions against protective gear.
	Isolate the contaminated area.
	Do not enter if you do not need to enter or are not equipped with protective equipment.
	Don't touch or walk around the exposed area.
	Remove all ignition sources.
	Make sure to ground all equipment when handling substances.
	If it's not dangerous, stop leaking.
	Do not touch damaged containers or leaks without wearing appropriate protective clothing.
	Steam suppression foam can be used to reduce steam generation.
	Cover it with a plastic sheet to prevent it from spreading.
	Pay attention to substances and conditions to avoid.
	Do not inhale (dust, fume, gas, mist, steam, spray).
	Avoid inhalation of (dust, fume, gas, mist, steam, spray).

B. Measures necessary to protect the environment.	Leakage can cause contamination.
	Prevent inflow into waterways, sewers, cellars, and confined spaces.
	Do not discharge it to the environment.
C. Purification or removal method.	Build an embankment and collect water for digestion.
	Absorb spills with inert substances (e.g., dry sand or soil) and place them in chemical waste containers.
	Remove air dust and wet it with water to prevent it from dispersing.
	Absorb the liquid and wash the contaminated area with detergent and water.
	If you leak a lot, make a ditch away from liquid leakage.
	Use a clean explosion-proof tool to collect absorbed substances.
C. Purification or removal method.	Collect the leaks.

7. Handling and storage methods.

A. How to handle safety.	Do not apply pressure, cut, weld, solder, bond, pierce, grind or expose to heat, flame, flame, static electricity or other sources of ignition.
	Follow all MSDS/Label precautions as product debris may remain even after the container is emptied.
	Use it carefully for handling/storing.
	Carefully open the cap before opening.
	Prevent long-term or persistent skin contact.
	Do not breathe steam from heated substances.
	Do not enter the storage area unless there is adequate ventilation.
	Make sure to ground all equipment when handling substances.
	Pay attention to substances and conditions to avoid.
	Pay attention to substances and conditions to avoid.
	Please refer to engineering care and personal protective equipment.
	Be careful of the heat.
	Measure and ventilate the oxygen concentration in the air during work because there is a risk of oxygen deficiency when working in a low-lying enclosed space.
	Do not handle all safety precautions until you read and understand them.
	Use electricity, ventilation, lighting, (...), and equipment to prevent explosion.
	Use only tools that do not spark.
	Take antistatic measures.
	Do not inhale (dust, fume, gas, mist, steam, spray).
	Avoid inhalation of (dust, fume, gas, mist, steam, spray).
	After handling, wash the handling area thoroughly.
	Handle only outdoors or in well-ventilated places.
B. Safe way to save.	Completely drain and properly block the empty drum container and immediately return it to the drum regulator or place it properly.
	Pay attention to substances and conditions to avoid.
	Stay away from heat, spa, flame, and high fever. - No smoking.
	Seal the container tightly.
	Store the container tightly sealed in a well-ventilated place.
	Store in a well-ventilated place and keep at low temperatures.
	Save it in a storage with a lock.

8. Exposure protection and personal protective equipment.

A. The exposure standards of chemicals, biological exposure standards, etc.

Domestic regulations.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	TWA - 50ppm STEL - 75ppm
Butyl acetate.	TWA - 150ppm STEL - 200ppm
Xylene.	TWA - 100ppm STEL - 150ppm
Ethylbenzene.	TWA - 100ppm STEL - 125ppm

Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
ACGIH regulations.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	TWA 20 ppm
Methyl isobutyl ketone.	STEL 75 ppm
Butyl acetate.	TWA 50 ppm
Butyl acetate.	STEL 150 ppm
Xylene.	STEL 150 ppm
Xylene.	TWA 100 ppm
Ethylbenzene.	TWA 20 ppm
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	TWA
Silicon oxide.	STEL
Silicon oxide.	ETC
POLYETHYLENE.	No data.
Biological exposure standards.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	"Methyl isobutyl ketone (purine, same day) 2 mg/g crea (Source: Worker Health Examination Practice Guidelines No. 1 "Appendix IV: Biological Exposure Indicator Test" Table) (참고) ACGIH: MIBK in urine 1 mg/L"
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	0.15 g/g creatinine Medium: urine Time: end of shift Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific)
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Other exposure standards.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Me. Proper engineering management.	Use process isolation, local exhaust, or other engineering management that adjusts the air level below the exposure standard.
Me. Proper engineering management.	If dust, fume, or mist is generated during operation, ventilate air pollution to remain below the exposure standard.
Me. Proper engineering management.	Install washing facilities and safety showers for facilities that store or use this substance.

All. Personal protective equipment.

Respiratory protection.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Wear respiratory protective equipment certified by the Occupational Safety and Health Agency to suit the physicochemical characteristics of the gas/liquid being exposed.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	"For gas/liquid substances, the following respiratory protection is recommended. -Isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or direct front gas mask (for organic compounds (for acidic gas) or other gas mask (for organic compounds (for acidic gas) or electric gas)
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	If oxygen is scarce (<19.5%), wear a respirator or a self-contained air respirator.
Methyl isobutyl ketone.	Wear respiratory protective equipment certified by the Korea Occupational Safety and Health Agency to suit the exposed gas/liquid physicochemical characteristics.
Methyl isobutyl ketone.	If the exposure concentration is less than 500 ppm, wear an appropriate filter or purifier, while protective gear.
Methyl isobutyl ketone.	Wear a loose-fitting hood/helmet-type electric respirator or continuous flow dustproof mask/gas mask (dustproof mask is only for liquid aerosol) if the exposure concentration is below 1250 ppm.
Methyl isobutyl ketone.	If the exposure concentration is lower than 2500 ppm, wear a front or electric type or air-supplied continuous flow/pressure type respirator equipped with an appropriate filter or canister.
Methyl isobutyl ketone.	If the exposure concentration is lower than 50000 ppm, wear a front or helmet/hood type, pressure-requiring blower mask equipped with an appropriate filter or purifier.
Methyl isobutyl ketone.	Wear self-air supply (SCBA) or pressure-requiring self-air supply (SCBA) respirators with appropriate filters or purifiers if the exposure concentration is lower than 500000 ppm.
Butyl acetate.	Wear respiratory protective equipment certified by the Korea Occupational Safety and Health Agency to suit the exposed gas/liquid physicochemical characteristics.
Butyl acetate.	If the exposure concentration is lower than 1500 ppm, wear an appropriate filter or purifier, while protective gear.
Butyl acetate.	Wear a loose-fitting hood/helmet-type electric respirator or continuous flow dustproof mask/gas mask (dustproof mask is only for liquid aerosol) if the exposure concentration is lower than 3750 ppm.
Butyl acetate.	If the exposure concentration is lower than 7500 ppm, wear front or electric or air-supplied continuous flow/pressure requirement type respirator equipped with an appropriate filter or canister.
Butyl acetate.	If the exposure concentration is lower than 150000 ppm, wear a front or helmet/hood type, pressure-requiring blower mask equipped with an appropriate filter or purifier.
Butyl acetate.	Wear self-air supply (SCBA) or pressure-requiring self-air supply (SCBA) respirators with appropriate filters or purifiers if the exposure concentration is lower than 1500000 ppm.
Xylene.	Wear respiratory protective equipment certified by the Korea Occupational Safety and Health Agency to suit the exposed gas/liquid physicochemical characteristics.
Xylene.	If the exposure concentration is lower than 1000 ppm, wear an appropriate filter or purifier, while protective gear.
Xylene.	Wear a loose-fitting hood/helmet-type electric respirator or continuous flow dustproof mask/gas mask (dustproof mask is only for liquid aerosols) if the exposure concentration is lower than 2500 ppm.
Xylene.	If the exposure concentration is lower than 5000 ppm, wear a front or motorized or air-supplied continuous flow/pressure requirement type respirator equipped with an appropriate filter or canister.
Xylene.	If the exposure concentration is lower than 100000 ppm, wear a front or helmet/hood type, pressure-requiring blower mask equipped with an appropriate filter or purifier.
Xylene.	Wear self-air supply (SCBA) or pressure-requiring self-air supply (SCBA) respirators with appropriate filters or purifiers if the exposure concentration is lower than 10000 ppm.

Ethylbenzene.	Wear respiratory protective equipment certified by the Korea Occupational Safety and Health Agency to suit the exposed gas/liquid physicochemical characteristics.
Ethylbenzene.	If the exposure concentration is lower than 1000 ppm, wear an appropriate filter or purifier, while protective gear.
Ethylbenzene.	Wear a loose-fitting hood/helmet-type electric respirator or continuous flow dustproof mask/gas mask (dustproof mask is only for liquid aerosols) if the exposure concentration is lower than 2500 ppm.
Ethylbenzene.	If the exposure concentration is lower than 5000 ppm, wear a front or motorized or air-supplied continuous flow/pressure requirement type respirator equipped with an appropriate filter or canister.
Ethylbenzene.	If the exposure concentration is lower than 100000 ppm, wear a front or helmet/hood type, pressure-requiring blower mask equipped with an appropriate filter or purifier.
Ethylbenzene.	Wear self-air supply (SCBA) or pressure-requiring self-air supply (SCBA) respirators with appropriate filters or purifiers if the exposure concentration is lower than 10000 ppm.
Propylene glycol monomethyl ether acetic acid.	Wear respiratory protective equipment certified by the Occupational Safety and Health Agency to suit the physicochemical characteristics of the gas/liquid being exposed.
Propylene glycol monomethyl ether acetic acid.	"For gas/liquid substances, the following respiratory protection is recommended.
Propylene glycol monomethyl ether acetic acid.	-Isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or direct front gas mask (for organic compounds (for acidic gas) or other gas mask (for organic compounds (for acidic gas) or electric gas)
METHYL GLUTARATE	If oxygen is scarce (<19.5%), wear a respirator or a self-contained air respirator.
METHYL GLUTARATE	Wear respiratory protective equipment certified by the Occupational Safety and Health Agency to suit the physicochemical characteristics of the gas/liquid being exposed.
METHYL GLUTARATE	"For gas/liquid substances, the following respiratory protection is recommended.
METHYL GLUTARATE	-Isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or isolated front gas mask (for organic compounds (for acidic gases, for acidic gas)) or direct front gas mask (for organic compounds (for acidic gas) or other gas mask (for organic compounds (for acidic gas) or electric gas)
Silicon oxide.	If oxygen is scarce (<19.5%), wear a respirator or a self-contained air respirator.
Silicon oxide.	Wear respiratory protective equipment certified by the Occupational Safety and Health Agency for the physicochemical properties of particulate matter exposed.
Silicon oxide.	"For particulate matter, the following respiratory protection is recommended." - Facial filtration dustproof mask or air filtration dustproof mask (high-efficiency particulate filter material) or electric fan-attached dustproof mask (dust, mist, fume filter material)"
POLYETHYLENE.	In case of lack of oxygen (<19.6%), wear a respirator mask or self-contained respirator.
POLYETHYLENE.	Wear respiratory protective equipment certified by the Occupational Safety and Health Agency for the physicochemical properties of particulate matter exposed.
POLYETHYLENE.	"For particulate matter, the following respiratory protection is recommended." - Facial filtration dustproof mask or air filtration dustproof mask (high-efficiency particulate filter material) or electric fan-attached dustproof mask (dust, mist, fume filter material)"
Eye protection.	In case of lack of oxygen (<19.6%), wear a respirator mask or self-contained respirator.
Eye protection.	Wear safety goggles or breathable goggles to protect your eyes from organic substances in vapor conditions that cause eye irritation or other health problems.
Eye protection.	Install emergency washing facilities (shower type) and washing facilities in a location where workers can easily access.

Eye protection.	Wear breathable goggles to protect your eyes against particulate matter that can irritate your eyes or cause other health disorders.
Eye protection.	Install emergency washing facilities (shower type) and washing facilities in a location where workers can easily access.
Protect your hands.	Wear safety goggles or breathable goggles to protect your eyes from vapor-based organic substances that cause eye irritation or other health problems.
Protecting my body.	Install emergency washing facilities (shower type) and washing facilities in a location where workers can easily access.
	Wear protective gloves of appropriate material considering the physical and chemical properties of the chemical.

9. Physiochemical characteristics.

A. Appearance.	
His personality.	a liquid body
Color	It's matte and transparent.
B. Smell.	The smell of solvent.
C. Smell threshold.	No data.
D. pH.	No data.
Ma. Melting point/Eo-eo-jeom.	No data.
B. Initial boiling point and boiling point range.	No data.
Sa. Print point.	No data.
Ah. The evaporation rate.	No data.
Now. Flammability (solid, gas)	No data.
Vehicle. Upper/lower limit of the range of ignition or explosion.	No data.
Car. Steam pressure.	No data.
Get in. The solubility.	No data.
Green onion. Steam density.	No data.
Ha. The proportion.	1.00 ~ 1.10
Large. n-octanol/water distribution coefficient (Kow)	No data.
You. Natural ignition temperature.	No data.
The decomposition temperature.	No data.
L. Mole.	65 ~ 80KU/25℃
Molecular weight.	No data.

10. Stability and reactivity.

A. The possibility of chemical stability and adverse reactions.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Flammable liquids and vapors.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	It can cause fire and explosion by violently polymerizing.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Can form explosive mixtures at or above flashpoints.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Container can explode when heated.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	High flammability: easily ignited by heat, spark, and flame
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Leakage is at risk of fire/explosion.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	There's a risk of steam explosion indoors, outdoors, and in sewers.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Steam can form an explosive mixture with air.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Steam can cause dizziness or suffocation without awareness.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Inhalation and contact can irritate the skin and eyes or cause burns.
Methyl isobutyl ketone.	Highly flammable liquids and vapors.
Methyl isobutyl ketone.	It can cause fire and explosion by violently polymerizing.
Methyl isobutyl ketone.	Can form explosive mixtures at or above flashpoints.
Methyl isobutyl ketone.	Container can explode when heated.
Methyl isobutyl ketone.	High flammability: easily ignited by heat, spark, and flame
Methyl isobutyl ketone.	Leakage is at risk of fire/explosion.
Methyl isobutyl ketone.	There's a risk of steam explosion indoors, outdoors, and in sewers.
Methyl isobutyl ketone.	Steam can form an explosive mixture with air.
Methyl isobutyl ketone.	Steam can move to the ignition source and flash back
Methyl isobutyl ketone.	Steam can cause dizziness or suffocation without awareness.
Methyl isobutyl ketone.	Inhalation and contact can irritate the skin and eyes or cause burns.
Butyl acetate.	Flammable liquids and vapors.
Butyl acetate.	It can cause fire and explosion by violently polymerizing.
Butyl acetate.	Can form explosive mixtures at or above flashpoints.
Butyl acetate.	Container can explode when heated.
Butyl acetate.	High flammability: easily ignited by heat, spark, and flame
Butyl acetate.	Leakage is at risk of fire/explosion.
Butyl acetate.	There's a risk of steam explosion indoors, outdoors, and in sewers.
Butyl acetate.	Steam can form an explosive mixture with air.
Butyl acetate.	Steam can move to the ignition source and flash back
Butyl acetate.	In case of fire, irritating, corrosive, and toxic gases can be generated.
Butyl acetate.	It can be toxic when inhaling and absorbing the skin.
Xylene.	Highly flammable liquids and vapors.
Xylene.	It can cause fire and explosion by violently polymerizing.
Xylene.	Can form explosive mixtures at or above flashpoints.
Xylene.	Container can explode when heated.
Xylene.	High flammability: easily ignited by heat, spark, and flame
Xylene.	Leakage is at risk of fire/explosion.
Xylene.	There's a risk of steam explosion indoors, outdoors, and in sewers.
Xylene.	Steam can form an explosive mixture with air.
Xylene.	Steam can move to the ignition source and flash back
Xylene.	Steam can cause dizziness or suffocation without awareness.
Xylene.	In case of fire, irritating, corrosive, and toxic gases can be generated.
Xylene.	Inhalation and contact can irritate the skin and eyes or cause burns.
Xylene.	It can be toxic when inhaling and absorbing the skin.
Ethylbenzene.	Highly flammable liquids and vapors.
Ethylbenzene.	It can cause fire and explosion by violently polymerizing.
Ethylbenzene.	Can form explosive mixtures at or above flashpoints.
Ethylbenzene.	Container can explode when heated.
Ethylbenzene.	High flammability: easily ignited by heat, spark, and flame
Ethylbenzene.	Leakage is at risk of fire/explosion.
Ethylbenzene.	There's a risk of steam explosion indoors, outdoors, and in sewers.
Ethylbenzene.	Steam can form an explosive mixture with air.
Ethylbenzene.	Steam can move to the ignition source and flash back
Ethylbenzene.	It can be toxic when inhaling and absorbing the skin.
Propylene glycol monomethyl ether acetic acid.	Flammable liquids and vapors.
Propylene glycol monomethyl ether acetic acid.	It can cause fire and explosion by violently polymerizing.

Propylene glycol monomethyl ether acetic acid.	Can form explosive mixtures at or above flashpoints.
Propylene glycol monomethyl ether acetic acid.	Container can explode when heated.
Propylene glycol monomethyl ether acetic acid.	High flammability: easily ignited by heat, spark, and flame
Propylene glycol monomethyl ether acetic acid.	Leakage is at risk of fire/explosion.
Propylene glycol monomethyl ether acetic acid.	There's a risk of steam explosion indoors, outdoors, and in sewers.
Propylene glycol monomethyl ether acetic acid.	Steam can form an explosive mixture with air.
Propylene glycol monomethyl ether acetic acid.	Steam can move to the ignition source and flash back
Propylene glycol monomethyl ether acetic acid.	Steam can cause dizziness or suffocation without awareness.
Propylene glycol monomethyl ether acetic acid.	In case of fire, irritating, corrosive, and toxic gases can be generated.
Propylene glycol monomethyl ether acetic acid.	Inhalation and contact can irritate the skin and eyes or cause burns.
METHYL GLUTARATE	It can decompose at high temperatures and produce toxic gases.
METHYL GLUTARATE	Container can explode when heated.
METHYL GLUTARATE	Some of them can burn, but they don't ignite easily.
METHYL GLUTARATE	Non-flammable, the material itself does not burn, but it may decompose when heated and cause corrosive/toxic fume.
Silicon oxide.	It can decompose at high temperatures and produce toxic gases.
Silicon oxide.	Container can explode when heated.
Silicon oxide.	Some of them can burn, but they don't ignite easily.
Silicon oxide.	Non-flammable, the material itself does not burn, but it may decompose when heated and cause corrosive/toxic fume.
POLYETHYLENE.	Container can explode when heated.
POLYETHYLENE.	Some of them can burn, but they don't ignite easily.
POLYETHYLENE.	Non-flammable, the material itself does not burn, but it may decompose when heated and cause corrosive/toxic fume.
POLYETHYLENE.	In case of fire, irritating, corrosive, and toxic gases can be generated.
Me. Conditions to avoid.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Stay away from heat, spa, flame, and high fever. - No smoking.
Methyl isobutyl ketone.	Stay away from heat, spa, flame, and high fever. - No smoking.
Butyl acetate.	Stay away from heat, spa, flame, and high fever. - No smoking.
Xylene.	Stay away from heat, spa, flame, and high fever. - No smoking.
Ethylbenzene.	Stay away from heat, spa, flame, and high fever. - No smoking.
Propylene glycol monomethyl ether acetic acid.	Stay away from heat, spa, flame, and high fever. - No smoking.
METHYL GLUTARATE	Heat, spark, flame and other sources of ignition.
Silicon oxide.	Heat, spark, flame and other sources of ignition.
POLYETHYLENE.	Heat, spark, flame and other sources of ignition.
C. Substances to avoid.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	Flammable material, reducing material.
Silicon oxide.	Flammable material, reducing material.
Silicon oxide.	Separation group :
POLYETHYLENE.	Flammable material, reducing material.
D. Hazardous substances produced during decomposition.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Irritating, corrosive, toxic gases.
Methyl isobutyl ketone.	Irritating, corrosive, toxic gases.
Butyl acetate.	Irritating, corrosive, toxic gases.

Xylene.	Stimulating and very toxic gas may be generated by pyrolysis or combustion during burning.
Ethylbenzene.	Stimulating and very toxic gas may be generated by pyrolysis or combustion during burning.
Propylene glycol monomethyl ether acetic acid.	Irritating, corrosive, toxic gases.
METHYL GLUTARATE	Stimulating and very toxic gas may be generated by pyrolysis or combustion during burning.
METHYL GLUTARATE	Corrosive/toxic fume.
Silicon oxide.	Corrosive/toxic fume.
Silicon oxide.	Irritating, corrosive, toxic gases.
POLYETHYLENE.	Corrosive/toxic fume.
POLYETHYLENE.	Irritating, corrosive, toxic gases.

11. Information on toxicity.

A. Information on a highly likely exposure route.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	There's no information available.
Silicon oxide.	No data.
POLYETHYLENE.	In the case of solid polyethylene, there is no significant toxic effect except for the possibility of intestinal obstruction when swallowed. Inhalation of dust causes inflammation of the lungs in animal experiments.

Me. Information on health hazards.

Acute toxicity.

epigram

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	LD50 8400 ㎎/㎏ Rat
Methyl isobutyl ketone.	LD50 2080 ㎎/㎏ Rat (OECD TG 401)
Butyl acetate.	LD50 3200 ㎖/㎏ Rat (OECD TG 423)
Xylene.	LD50 3523 ㎎/㎏ Rat (EU Method B1)
Ethylbenzene.	LD50 3500 ㎎/㎏ Rat
Propylene glycol monomethyl ether acetic acid.	LD50 8532 ㎎/㎏ Rat
METHYL GLUTARATE	LD50 1920 ㎎/㎏ Rat
Silicon oxide.	LD50 3160 ㎎/㎏ Rat
POLYETHYLENE.	LD50 > 8000 ㎎/㎏ Rat

Percutaneous.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	LD50 > 2000 ㎎/㎏ Rat (OECD Guideline 402,GLP))
Methyl isobutyl ketone.	LD0 ≥2000 ㎎/㎏ Rabbit (OECD TG 402, GLP)
Butyl acetate.	LD50 > 17600 ㎎/㎏ Rabbit (OECD TG 402)
Xylene.	LD50 1100 mg/kg (Transformed Acute Toxicity Estimate (EU CLP Harmony Classification: Classification 4)
Ethylbenzene.	LD50 > 20000 ㎎/㎏ Rabbit (OECD Guideline 402 GLP)
Propylene glycol monomethyl ether acetic acid.	LD50 > 5000 ㎎/㎏ Rabbit
METHYL GLUTARATE	LD50 8500 ㎎/㎏ Rat
Silicon oxide.	LD50 > 5000 ㎎/㎏ Rabbit
POLYETHYLENE.	No data.

Inhale.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	증기 LC50 5.160 ㎎/ℓ 4 hr Rat ((OECD TG 403,GLP) Rat no remarkable clinical signs and no mortalities)
Methyl isobutyl ketone.	Steam LC50 11.6 mg/ 4 4 hr Rat (Application of classification criteria for gas as steam is almost gaseous in the test environment (LC50: 1,968 to 3,936 pp))
Butyl acetate.	Steam LC50 1802 mg/L Rat.
Xylene.	Steam LC50 5922 ppm 4 hr Rat (25.713 mg/LEPA OPP 81-3, GLP;1330-20-7; EU CLP Harmonization Classification: classification 4)
Ethylbenzene.	Steam LC50 4000 ppm 4 hr Rat (rat LC50=4000 ppm 4 hr conversion: 17.8 mg/L (ECHA, HSDB), RD50=1432 ppm 6.2 mg/L; EU CLP harmonization classification classified 4)
Propylene glycol monomethyl ether acetic acid.	Steam LC0> 2000 ppm 3 hr Rat (No death observed at that concentration)
METHYL GLUTARATE	(No data)
Silicon oxide.	Mist LC50 5.01 mg/L 4hr Rat (Original: Aerosol)
POLYETHYLENE.	Dust LC50 75.5 mg/L 30 min Rat.
Corrosive or irritating skin.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Skin irritation was observed in the rabbit's irritation test (OECD TG 404). Mean erythema score (5 treated animals; 24, 48, 72 hr average): 2.56.
Methyl isobutyl ketone.	As a result of the skin corrosion/stimulation test on rabbits, no irritation was observed OECD TG 404.
Butyl acetate.	Skin corrosion/stimulation test results for rabbits do not show irritation OECD TG 404.
Xylene.	Skin irritation test using rabbits EU Method B.4 results of moderate irritation with the primary skin irritation index of 3.
Ethylbenzene.	As a result of the rabbit skin irritation test,
Propylene glycol monomethyl ether acetic acid.	Rabbit: Not irritating
METHYL GLUTARATE	No side effects observed (no irritation)
Silicon oxide.	Rabbit's stimulation.
POLYETHYLENE.	No data.
Severe eye damage or irritation.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No significant eye irritation observed in rabbit stimulation test Not irritating in rabbit (OECD TG 405). Mean conjunctival score (24, 48, 72 hour average): 0.05
Methyl isobutyl ketone.	Severe eye damage/stimulation test using rabbits showed weak stimulation corneal index 0.08, iris 0, and congestion 0.8 OECD TG 405
Butyl acetate.	Severe eye damage/stimulation test results for rabbits showed no eye irritation Corneal index: 0.33/4, iris index: 0.56/2, conjunctival index: 1/3, conjunctival edema index: 0.33/4 OECD TG 405, GLP
Xylene.	"Short-term exposure standard STEL 100 ppm of mixed xylene showed eye and respiratory irritation effects on the human body exposed.
Ethylbenzene.	Conjunctival redness (blood vessels diffuse more than normal and crimson, individual blood vessels are not easily identified) was observed in the rabbit during o-xylene injection. conjunctival chemical symptoms (pouring above normal) and conjunctival secretions (abnormal amounts) were observed in 5 rabbits per hour after staining.
Propylene glycol monomethyl ether acetic acid.	Regulations on the classification and indication of chemical substances by the Ministry of Environment: Classification 2"
METHYL GLUTARATE	As a result of the rabbit's eye irritation test, there was no minor irritation or corneal damage to the conjunctiva.
Silicon oxide.	Rabbit: Weak irritation
POLYETHYLENE.	No side effects observed (no irritation)
Respiratory irritability.	No data.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.

METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
I'm sensitive to skin irritabilit	–
	No data.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Buehler TEST (OECD Guideline 406, GLP) for Guinea Pig is irritable.
Methyl isobutyl ketone.	Skin hypersensitivity test results for guinea pigs do not cause hypersensitivity OECD TG 406
Butyl acetate.	Buehler test results using guinea pigs are irritable OECD TG 406
Xylene.	Mouse local lymph node test OECD TG 429 irritable
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	Guinea Pig/maximization test (GLP): No hypersensitivity
METHYL GLUTARATE	No data.
Silicon oxide.	Not sensitive to skin.
POLYETHYLENE.	No data.
Carcinogenic.	
Occupational Safety and Health Act.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Ministry of Employment and Labor Notice.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	2
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	2
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
IARC	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	2B
Butyl acetate.	No data.
Xylene.	3
Ethylbenzene.	2B
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	3 (Silica, amorphous)
POLYETHYLENE.	3
OSHA	

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
ACGIH	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	A3
Butyl acetate.	No data.
Xylene.	A4
Ethylbenzene.	A3
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
NTP	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
EU CLP	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	1B
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Reproductive cell degeneration.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	** EU CLP: 1B
Methyl isobutyl ketone.	OECD TG 476, Mammal chromosome abnormality test result OECD TG 473, negative in metabolic absence, negative in vivo mammalian red blood cells, negative OECD TG 474, GLP
Butyl acetate.	"As a result of the bacterial return mutation test using microorganisms in the vitro, negative OECD Guideline 471 regardless of the presence or absence of metabolic activity."

Xylene.	In vivo mammalian red blood cell micronuclear test results negative OECD Guideline 474"
Ethylbenzene.	Returning mutation test using bacteria in vitro OECD TG471 results were negative, and small nuclear test OEF 474 using mouse bone marrow cells in vivo were negative.
Propylene glycol monomethyl ether acetic acid.	"The results of the genetic toxicity test using mouse lympoma L5178Y cell were negative, and the results of the chromosomal abnormality test using Chinese Hamster Oval;CHO cell were negative, OECD TG476, GLP, OECD TG473
METHYL GLUTARATE	Small nuclear test results using mouse bone marrow cells are negative, Unschedulated DNA synthesis using mammalian hepatocytes; UDS test results are negative, OECD TG474, OECD TG486, GLP"
Silicon oxide.	Invitro-Salmonellatyphurium/TA98, TA100, TA1535, TA1537 (Returning mutant test, GLP): Negative (negative), CHL Cells/Chromosomalysalysalysalysalysalysalysalysalysis (GLP): Negative (negative/DSU), regardless of metabolic activity)
POLYETHYLENE.	No data.
Reproductive toxicity.	No data.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	Developmental toxicity/maximum formation tests using rats showed kidney weight gain, fetal weight loss, and osteoporosis delays, but no evidence of malformation was observed (NOAEL=1000 ppm) (OECD Guideline 414, GLP)
Butyl acetate.	"Second-generation reproductive toxicity tests in rats showed weight, weight gain, and loss in food intake at 1500 ppm to 2000 ppm (NOAEL Systemic Toxicity, adultrats=750 ppm (nominal)) (OECD TG 416, GLP)
Xylene.	Fetal developmental toxicity tests in rats showed weight and liver weight loss, baby size loss, and rib malformations, but were judged to be more maternal toxicity than developmental toxicity (NOAELmaternal toxicity=2.5 mg/Lair (nominal), NOAELteratogenicity=10 mg/Lair (nominal4) (OECD)
Ethylbenzene.	No toxic effects related to reproduction and development were observed up to the highest concentration (500 ppm) tested for rat second-generation reproductive toxicity (absorption repetitive exposure, EPA OPPTS870.3800). NOAEC (reproductive/development/parent toxicity)>=Development inhalation toxicity test using 500 ppm rats (OECD TG414) results show that BMCL10 (development) =5761 mg/, due to weight loss in newborns and BMCL10 (mother toxicity) =2675 mg/㎥ due to weight loss in mothers.
Propylene glycol monomethyl ether acetic acid.	"As a result of the second generation inhalation reproductive toxicity test (OECD TG416, GLP) using rats, no adverse effects related to reproduction or development were observed up to 500 ppm. NOEL for parental systemic toxicity is NOEL = 100 ppm due to weight loss and liver weight increase.
METHYL GLUTARATE	As a result of the inhalation development toxicity test (EOCD TG414, GLP) using rats, no malformation effect was observed up to 2000 ppm. Neon weight loss at 1000 or 2000 ppm is weak. Maternal toxicity decreases weight and feed consumption at 1000 ppm and 2000 ppm. NOAEL = 2000 ppm, NOAEL (mother/developmental toxicity) = 500 ppm."
Silicon oxide.	"Rat/Oral (0, 100, 300, 1000 mg/kg/day for 44D (M) and 41-45D(F)) (GLP): no toxic effects on reproductive variables
POLYETHYLENE.	Rat/Inhalation (500, 2000, 4000 ppm for 21D) (GLP): no malformed or other toxic effects."
Specific target organ toxicity (1 exposure)	No data.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
	In humans, central neurological symptoms accompanied by anesthesia such as airway and mucosal irritation, headache, dizziness, vomiting, etc. appear. Animal experiments show anesthesia.
	Causes central nervous system irritation, wastewater species, and respiratory system irritation in humans. Target organ: central nervous system, respiratory system

Xylene.	Dizziness was reported in humans, significant awakening, progress, and anesthesia were reported in experimental animals. When exposed to 100 ppm442 mg/에 to humans, mild irritation to the eyes and upper respiratory tract and slight central nervous system effects.
Ethylbenzene.	Neurological effects such as dizziness and airway irritation in experimental animals.
Propylene glycol monomethyl ether acetic acid.	Rat (male, female)/oral (500, 1000, 2000, 4000, 6300, 100000 mg/kg): lean (sleeping), pyloring, water eyes (wet eyes), anorexia (abdominal loss), shallow breathing, and salvation (advanced).
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	Inhalation of dust causes inflammation of the lungs in animal experiments (mice).
Specific target organ toxicity (repeated exposure)	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	As a result of the 90-day repeatability test OECD TG408, NOAEL 250 mg/kg bw/day due to an increase in height weight
Butyl acetate.	"As a result of 90 days of repeated administration of rodents in rats, <similar substance CAS No. 71-36-3>, central nervous system abnormalities such as loss of exercise and decreased activity were observed 2 to 3 minutes after exposure in the 600 mg/kg concentration group. Other effects are considered to be alcohol effects. NOAEL=level: 125 mg/kg binwald"
Xylene.	90-day inhalation toxicity test in rats showed acute and short-term symptoms of decreased activity levels at moderate and highest concentrations, decreased weight and prey intake, and symptoms of nasal upper respiratory irritation NOAEC=500 ppm GLP, EPAOTS 798.2450"
Ethylbenzene.	In humans and animals, central nervous disorders (lack of appetite, vomiting, nightmares, forgetfulness, anxiety, dizziness after posture change, etc.) were observed and reported. It has been reported that chronic exposure to substances can cause hearing loss due to noise. National Institute of Environmental Research's classification of toxic substances: Classification 1
Propylene glycol monomethyl ether acetic acid.	"As a result of 13-week repeated oral toxicity test using rats, NOAEL=75 mg/kg bw/dayOECD TG408, GLP, ECHA based on hematologic changes indicating weak regenerative anemia, increased liver weight, and changes in central lobular hepatocellular hypertrophy."
METHYL GLUTARATE	The 13-week inhalation repeatability test using mice showed an increase in liver and kidney weight above 750 ppm3.55 mg/L, but no other histopathological findings or harmful effects were observed NOAEC=1000 ppm4.74 mg/LOECD TG413, ECHA
Silicon oxide.	As a result of repeated inhalation exposure at 4-13 weeks and 200-800 ppm concentration to confirm inhalation neurotoxic OECD TG424, hearing thresholds did not recover even after stopping exposure at a concentration of 400 ppm or higher. The OHC loss of 200-800 ppm during the 8-week recovery period increased severely to 4% and 100%, respectively. LOAEL=200ppm"
POLYETHYLENE.	"Rat/Oral (0, 100, 300, 1000 mg/kg/day for 44D(M) and 41-55D(F)) (GLP): No toxic effects were observed.
It's harmful to people's	Rat (male, female)/absorption (300, 1000, 3000 ppm for 2W) (GLP): showing slight olfactory epithelial damage, no other symptoms observed."
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
	In humans, quartz and cristobalite have been reported to have silicosis. In experimental animals, it is reported that there is a possibility of fiber formation in quartz and cristobalite. It is reported that quartz has autoimmune diseases and chronic kidney diseases.
	No data.
Methyl isobutyl ketone.	EU CLP Harmony Classification 1
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	동점도: 0.86 mm2/s @ 20degC (expolated calculation)

Propylene glycol monomethyl ether acetic acid.	Hydrocarbons. Swallowing liquids can cause chemical pneumonia due to mistaking. Tie rate. 0.64 //s 25 ℃.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Other harmful effects.	No data.
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.

12. Impact on the environment.

A. Ecotoxicity.

Fish.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	LC50 9.22 ㎎/ℓ 96 hr Oncorhynchus mykiss
Methyl isobutyl ketone.	LD50 672 ㎎/ℓ 48 hr Brachydanio rerio (OECD Guideline 203, GLP)
Butyl acetate.	LC50 18 ㎎/ℓ 96 hr Pimephales promelas (유수식, OECD Guideline 203)
Xylene.	LC50 2.6 ㎎/ℓ 96 hr (OECD Guideline 203)
Ethylbenzene.	LC50 5.1 ㎎/ℓ 96 hr
Propylene glycol monomethyl ether acetic acid.	LC50 ≥ 100 ㎎/ℓ 96 hr Oryzias latipes
METHYL GLUTARATE	LC50 13400 ㎎/ℓ 96 hr Oncorhynchus mykiss
Silicon oxide.	LL0 10000 ㎎/ℓ 96 hr Brachydanio rerio
POLYETHYLENE.	No data.

Crustaceans.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	EC50 6.14 ㎎/ℓ 48 hr Daphnia magna
Methyl isobutyl ketone.	EC50 1550 ㎎/ℓ 24 hr Daphnia magna (OECD TG 202, GLP)
Butyl acetate.	EC50 44 ㎎/ℓ 48 hr Daphnia magna
Xylene.	LC50 3.6 ㎎/ℓ 24 hr (OECD TG202)
Ethylbenzene.	LC50 1.8 ㎎/ℓ 48 hr Daphnia magna (Ceriodaphnia dubia NOEC 1.0 ㎎/L (0.96 ㎎/L) 7days)
Propylene glycol monomethyl ether acetic acid.	EC50 373 ㎎/ℓ 48 hr Daphnia magna
METHYL GLUTARATE	EC50 3940 ~ 4670 ㎎/ℓ 48 hr Daphnia magna
Silicon oxide.	EC50 > 5000 ㎎/ℓ 48 hr Daphnia magna
POLYETHYLENE.	No data.

bird

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	EC50 19 ㎎/ℓ 72 hr Selenastrum capricornutum
Methyl isobutyl ketone.	EC50 > 146 ㎎/ℓ 7 day 기타 (Blue algae, OECD221)
Butyl acetate.	EC50 335 ㎎/ℓ 72 hr Selenastrum capricornutum
Xylene.	EC50 1.3 ㎎/ℓ 48 hr (OECD TG201, GLP)
Ethylbenzene.	EC50 2.6 ㎎/ℓ 96 hr 기타 (marine invertebrate)
Propylene glycol monomethyl ether acetic acid.	EC50 ≥ 1000 ㎎/ℓ 72 hr Selenastrum capricornutum
METHYL GLUTARATE	No data.

	EC50 > 173.1 ㎎/ℓ 72 hr 기타 (NOEC : 173.1mg/L, 시험종 Desmodesmus subspicatus)
Silicon oxide.	
POLYETHYLENE.	No data.
B. Residuality and resolution.	
Residuality.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	log Kow 2.1 ~ 6 (추정치)
Methyl isobutyl ketone.	log Kow 1.31
Butyl acetate.	log Kow 1.78
Xylene.	log Kow 3.15
Ethylbenzene.	log Kow 3.15
Propylene glycol monomethyl ether acetic acid.	log Kow 0.43
METHYL GLUTARATE	log Kow 0.62
Silicon oxide.	log Kow 0.53
POLYETHYLENE.	No data.
Decomposable.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	BOD5/COD 0.43
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
C. Bioconcentration.	
Concentrated.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	BCF 25.9 (Oncorhynchus mykiss)
Ethylbenzene.	BCF 1 (BCF)
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	BCF 3.162
POLYETHYLENE.	No data.
Biodegradable.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	83 % 28 day (OECD TG 301, GLP)
Butyl acetate.	83 % 28 day (OECD TG 301D)
Xylene.	90 % 28 day (이분해성, OECD TG301F, GLP)
Ethylbenzene.	70 ~ 80 % 28 day (ISO 14593 CO2 headspace시험, GLP)
Propylene glycol monomethyl ether acetic acid.	> 60 (%) 28 day
METHYL GLUTARATE	98 (%) 28 day
Silicon oxide.	No data.
POLYETHYLENE.	No data.
D. Soil migration.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.

Methyl isobutyl ketone.	No data.
Butyl acetate.	No data.
Xylene.	No data.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.
Ma. Other harmful effects.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	갑각류Daphnia magna : NOEC21 d=78 mg/L OECD TG 211
Butyl acetate.	No data.
Xylene.	어류 만성독성시험 NOEC56d>1.3mg/L 물벼룩 만성독성시험US EPA 600/4-91-003 결과 NOEC=1.17 mg/L
Ethylbenzene.	조류 Selenastrum capricornutum, NOEC96h=3.4 mg/L 지수식 EPA 1985, GLP
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.

13. Precautions for disposal

A. How to dispose of it.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	"1) Separate oil from water and incinerate the separated oil components, and dispose of the remaining water in a water pollution prevention facility. 2) After treatment with evaporation and concentration, incinerate or stabilize the residue. 3) Treatment with agglomeration and precipitation methods and incinerate the remnants. 4) Refine by separation, distillation, extraction, filtration, and pyrolysis. 5) Incineration or stabilization."
Methyl isobutyl ketone.	"Take care of it in one of the following ways. 1. Incineration. 2. After treatment by evaporation and concentration, incinerate the remnants. 3. Refine by separation, distillation, extraction, or filtration and incinerate the remnants. 4. Use reactions of neutralization, oxidation, reduction, polymerization, and condensation. 5. incinerate the remnants, or dispose of them again by means of aggregation, precipitation, filtration, or dehydration, and then incinerate the remnants."
Butyl acetate.	"1) Treat it with neutralization, hydrolysis, oxidation, and reduction. 2) High-temperature incineration or high-temperature melting treatment. 3) Solidify it."
Xylene.	"Take care of it in one of the following ways. 1. Incineration. 2. After treatment by evaporation and concentration, incinerate the remnants. 3. Refine by separation, distillation, extraction, or filtration and incinerate the remnants. 4. Use reactions of neutralization, oxidation, reduction, polymerization, and condensation. 5. incinerate the remnants, or dispose of them again by means of aggregation, precipitation, filtration, or dehydration, and then incinerate the remnants."
Ethylbenzene.	"Take care of it in one of the following ways.

	1. Treatment using neutralization, oxidation, and reduction reactions, and then by aggregation, precipitation, filtration, and dehydration. 2. Process by evaporating and concentrating. 3. Refine by separation, distillation, extraction, and filtration."
Propylene glycol monomethyl ether acetic acid.	1) Pre-treatment of oil and water separation methods is possible.
METHYL GLUTARATE	If specified in the Waste Control Act, discard the contents and containers in accordance with the regulations.
Silicon oxide.	If specified in the Waste Control Act, discard the contents and containers in accordance with the regulations.
POLYETHYLENE.	If specified in the Waste Control Act, discard the contents and containers in accordance with the regulations.
B. Precautions for disposal.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Discard the container of contents (as specified in the relevant laws and regulations).
Methyl isobutyl ketone.	Discard the container of contents (as specified in the relevant laws and regulations).
Butyl acetate.	Discard the container of contents (as specified in the relevant laws and regulations).
Xylene.	Discard the container of contents (as specified in the relevant laws and regulations).
Ethylbenzene.	Discard the container of contents (as specified in the relevant laws and regulations).
Propylene glycol monomethyl ether acetic acid.	Discard the container of contents (as specified in the relevant laws and regulations).
METHYL GLUTARATE	Discard the container of contents (as specified in the relevant laws and regulations).
Silicon oxide.	Discard the container of contents (as specified in the relevant laws and regulations).
POLYETHYLENE.	Discard the container of contents (as specified in the relevant laws and regulations).

14. Information necessary for transportation.

A. UN number (UN No.)	1263
	Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base
Me. Proper shipping name.	
C. Risk rating in transportation.	3
D. Courage level.	III
Hey, marine pollutants.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	relevant
Methyl isobutyl ketone.	Contrasting.
Butyl acetate.	Contrasting.
Xylene.	Contrasting.
Ethylbenzene.	Contrasting.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.

B. Special safety measures that the user needs or needs to know about transportation or means of transportation.

Emergency measures in case of a fire.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	F-E
Methyl isobutyl ketone.	F-E
Butyl acetate.	F-E
Xylene.	F-E

Ethylbenzene.	F-E
Propylene glycol monomethyl ether acetic acid.	F-E
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.
Emergency measures in case of leakage.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	S-E
Methyl isobutyl ketone.	S-D
Butyl acetate.	S-D
Xylene.	S-D
Ethylbenzene.	S-D
Propylene glycol monomethyl ether acetic acid.	S-D
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

15. Status of legal regulations

A. Regulations under the Occupational Safety and Health Act.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Substances subject to process safety report (PSM) submission
Methyl isobutyl ketone.	Substances subject to process safety report (PSM) submission
Methyl isobutyl ketone.	Hazardous substances to be managed.
Methyl isobutyl ketone.	Substances subject to work environment measurement (measurement cycle: 6 months)
Methyl isobutyl ketone.	Special health examination target substance (diagnosis cycle: 12 months)
Methyl isobutyl ketone.	Exposure criteria setting substance.
Butyl acetate.	Substances subject to process safety report (PSM) submission
Butyl acetate.	Hazardous substances to be managed.
Butyl acetate.	Substances subject to work environment measurement (measurement cycle: 6 months)
Butyl acetate.	Exposure criteria setting substance.
Xylene.	Substances subject to process safety report (PSM) submission
Xylene.	Hazardous substances to be managed.
Xylene.	Substances subject to work environment measurement (measurement cycle: 6 months)
Xylene.	Special health examination target substance (diagnosis cycle: 12 months)
Xylene.	Exposure criteria setting substance.
Ethylbenzene.	Substances subject to process safety report (PSM) submission
Ethylbenzene.	Hazardous substances to be managed.
Ethylbenzene.	Substances subject to work environment measurement (measurement cycle: 6 months)
Ethylbenzene.	Special health examination target substance (diagnosis cycle: 12 months)
Ethylbenzene.	Exposure criteria setting substance.
Propylene glycol monomethyl ether acetic acid.	Substances subject to process safety report (PSM) submission
METHYL GLUTARATE	No data.
Silicon oxide.	Substances subject to work environment measurement (measurement cycle: 6 months)
Silicon oxide.	Special health examination target substance (diagnosis cycle: 24 months)
POLYETHYLENE.	No data.
B. Regulations under the Chemical Substance Control Act.	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	No data.

Butyl acetate.	No data.
Xylene.	Toxic substances.
Ethylbenzene.	No data.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	No data.
Silicon oxide.	No data.
POLYETHYLENE.	No data.

C. Regulations under the Dangerous Goods Safety Management Act.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	4th-rate 1st petroleum (non-water-soluble) 200L.
Butyl acetate.	4th-rate 2nd petroleum (non-water-soluble) 1000L.
Xylene.	4th-rate 2nd petroleum (non-water-soluble) 1000L.
Ethylbenzene.	4th-rate 1st petroleum (non-water-soluble) 200L.
Propylene glycol monomethyl ether acetic acid.	4th-rate second petroleum (non-water-soluble liquid) 1000ℓ
METHYL GLUTARATE	4th-rate third petroleum (non-water-soluble liquid) 2000 4
Silicon oxide.	No data.
POLYETHYLENE.	No data.

D. Regulation under the Wastes Control Act.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	No data.
Methyl isobutyl ketone.	Designated waste.
Butyl acetate.	Designated waste.
Xylene.	Designated waste.
Ethylbenzene.	Designated waste.
Propylene glycol monomethyl ether acetic acid.	No data.
METHYL GLUTARATE	Designated waste.
Silicon oxide.	Designated waste.
POLYETHYLENE.	No data.

bad luck

Domestic regulation.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)

Methyl isobutyl ketone.

Butyl acetate.

Xylene.

Ethylbenzene.

Propylene glycol monomethyl ether acetic acid.

METHYL GLUTARATE

Silicon oxide.

POLYETHYLENE.

Other domestic regulations.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

Foreign regulation.

US Management Information (OSHA Regulations)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (CERCLA Regulations)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	2267.995kg 5000lb
Butyl acetate.	2267.995kg 5000lb
Xylene.	45.3599kg 100lb
Ethylbenzene.	453.599kg 1000lb
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (EPCRA 302 Regulations)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (EPCRA 304 Regulations)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (EPCRA 313)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Applicable.
Butyl acetate.	Not applicable.
Xylene.	Applicable.
Ethylbenzene.	Applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.

METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (Materials of Rotterdam Convention)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

US Management Information (Stockholm Convention Material)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

U.S. management information (Emotional material in Montreal)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Not applicable.
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	Not applicable.
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

EU classification information (confirmed classification result)

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	Carc. Cat. 2; R45/Muta. Cat. 2; R46, Xn; R65
Methyl isobutyl ketone.	Flam. Liq. 2 Acute Tox. 4 * STOT SE 3 Eye Irrit. 2
Butyl acetate.	Flam. Liq. 3 STOT SE 3
Xylene.	Flam. Liq. 3 Acute Tox. 4 * Acute Tox. 4 * Skin Irrit. 2
Ethylbenzene.	Flam. Liq. 2 Acute Tox. 4 * Asp. Tox. 1 STOT RE 2
Propylene glycol monomethyl ether acetic acid.	R10Xi; R36
METHYL GLUTARATE	해당없음

Silicon oxide.	해당없음
POLYETHYLENE.	해당없음
EU classification information (risk phrase)	
Solvent naphtha (oil), hard aromatic compound (PETR	R45, R65, R46
Methyl isobutyl ketone.	H225 H332 H335 H319
Butyl acetate.	H226 H336
Xylene.	H226 H332 H312 H315
Ethylbenzene.	H225 H332 H304 H373 (hearing organs)
Propylene glycol monomethyl ether acetic acid.	R10, R36
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.
EU Classification Information (Safety Statement)	
Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)	S53, S45
Methyl isobutyl ketone.	Not applicable.
Butyl acetate.	Not applicable.
Xylene.	Not applicable.
Ethylbenzene.	Not applicable.
Propylene glycol monomethyl ether acetic acid.	S2, S25
METHYL GLUTARATE	Not applicable.
Silicon oxide.	Not applicable.
POLYETHYLENE.	Not applicable.

16. Other references.

A. Source of data.

Solvent naphtha (oil), hard aromatic compound (PETROLEUM), LIGHT AROMATIC (SOLVENT NAPHTHA (PETROLEUM)

IUCLID's image)

IUCLID (Ma. Melting point/Fish point)

NLM (C. Initial boiling point and boiling point range)

IUCLID (The flash point)

IUCLID (car vapor pressure)

IUCLID (dissolvability)

IUCLID (Low. Specific gravity)

IUCLID(거. n-octanol/water distribution coefficient (Kow))

IUCLID (You. Natural ignition temperature)

RTECS.

ECHA.

ECHA.

ECHA (skin corrosion or irritation)

ECHA (severe eye damage or irritation)

ECHA.

EU CLP Harmony Classification (Hazardous)

IUCLID (Fish.

IUCLID.

IUCLID (Bird.

IUCLID (remaining)
Methyl isobutyl ketone.
ECHA Registered substances(성상)
ECHA Registered substances(색상)
ChemIDplus (Ma. Melting point/Fish point)
ChemIDplus (F. Initial boiling point and boiling point range)
ICSC (company flash point)
ICSC (upper/lower limit of vehicle. printing or explosion range)
ICSC (car vapor pressure)
ChemidPlus (dissolvability)
IPCS (wave.steam density)
ECHA (Low. Specific gravity)
ChemIDPlus (large.n-octanol/water distribution coefficient (Kow))
ICSC (You. spontaneous ignition temperature)
ECHA.
HSDB (Molecular weight)
ECHA.
ECHA.
ECHA.
ECHA (skin corrosion or irritation)
ECHA (severe eye damage or irritation)
(Breath irritability)
ECHA.
ECHA (genesis of reproductive cell mutations)
ECHA (raw food toxicity)
ECHA (specific target organ toxicity (repeated exposure))
ECHA.
ECHA.
ECHA.
ChemidPlus (remaining property)
ECHA (biodegradable)
ECHA (D. Soil Mobility)
ECHA (Ma. Other harmful effects)
Butyl acetate.
ICSC (Personality)
ICSC (Color)
ECHA Registered substances(나. 냄새)
ECHA(라. pH)
ICSC (Ma. Melting point/Fish point)
HSDB (C. Initial boiling point and boiling point range)
ICSC (company flash point)
2 (Ah, evaporation rate)
ICSC (upper/lower limit of vehicle. printing or explosion range)
hSDB (car vapor pressure)
Chemid plus (dissolvability)
ICSC, hsdb (wave.vapor density)
HSDB (Low. Specific gravity)
HSDB (large.n-octanol/water distribution coefficient (Kow))
ICSC (You. spontaneous ignition temperature)
ChemidPlus (Molecular weight)
ECHA.
ECHA.
ECHA.
ECHA (skin corrosion or irritation)

ECHA (severe eye damage or irritation)

ECHA.

ECHA (genesis of reproductive cell mutations)

ECHA (raw food toxicity)

NLM (specific target organ toxicity (1 exposure)

ECHA (specific target organ toxicity (repeated exposure))

(Hazardous)

ECHA.

ECHA.

ECHA.

HSDB (remaining property)

ECHA (biodegradable)

Xylene.

HSDB (Statue)

HSDB (Color)

HSDB (Smell of Me)

HSDB (All. Smell threshold)

HSDB (Ma. Melting point/Fish point)

ICSC (C. Initial boiling point and boiling point range)

ICSC (company flash point)

SRC (upper/lower limit of vehicle. ignition or explosion range)

SRC (Car. Vapor Pressure)

HSDB (Dissolvability)

HSDB (wave. vapor density)

ICSC (Low. Specific gravity)

HSDB (large.n-octanol/water distribution coefficient (Kow))

SRC (You. spontaneous ignition temperature)

ECHA.

Pubchem (Molecular weight)

ECHA.

EU CLP Harmony Classification (Percutaneous)

ECHA; EU CLP Harmony Classification (Inhalation)

ECHA (skin corrosion or irritation)

ECECHA, Regulations on Classification and Labeling of Chemical Substances by the Ministry of Environment (severe eye damage or irritation)

ECHA.

ECHA (genesis of reproductive cell mutations)

ECHA (raw food toxicity)

HSDB, IPCS, and ECHA (specific target organ toxicity (1 exposure)

G GESTIS, ICSC, Toxic substance notification (specific target organ toxicity (repeated exposure))

ECHA.

ECHA.

ECHA.

ECHA.

HSDB (remaining property)

ECHA.

ECHA (biodegradable)

ECHA (D. Soil Mobility)

ECHA (Ma. Other harmful effects)

Ethylbenzene.

HSDB (Statue)

HSDB (Color)

HSDB (Smell of Me)

HSDB (All. Smell threshold)

ICSC (Ma. Melting point/Fish point)

ICSC (C. Initial boiling point and boiling point range)

ICSC (company flash point)

ICSC (upper/lower limit of vehicle. printing or explosion range)

HSDB (Car vapor pressure)

ICSC (dissolvability)

HSDB (wave. vapor density)

ECHA (Low. Specific gravity)

HSDB (large.n-octanol/water distribution coefficient (Kow))

ICSC (You. spontaneous ignition temperature)

HSDB (L.Viscosity.

HSDB (Molecular weight)

ECHA, HSDB.

ECHA.

ECHA, EU CLP Harmony Classification (Inhalation)

ECHA (skin corrosion or irritation)

ECHA (severe eye damage or irritation)

ECHA (genesis of reproductive cell mutations)

ECHA (raw food toxicity)

HSDB (Specific target organ toxicity (1 exposure)

ECHA (specific target organ toxicity (repeated exposure))

Hydrocarbons. Swallowing liquid can cause chemical pneumonia due to misuse. The kinematic rate is 0.64 //s 25 ℃ (intake harmfulness)

ECHA.

ECHA.

ECHA.

HSDB (remaining property)

ECHA.

ECHA (biodegradable)

ECHA (D. Soil Mobility)

ECHA (Ma. Other harmful effects)

Propylene glycol monomethyl ether acetic acid.

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)(성상)

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)(색상)

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)(나. 냄새)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(마. 녹는점/어는점)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(바. 초기 끓는점과 끓는점 범위)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(사. 인화점)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(차. 인화 또는 폭발 범위의 상한/하한)

National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)(카. 증기압)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(타. 용해도)

Intermational Programme on Chemical Safety(IPCS INCHEM)(http://www.inchem.org/)(파. 증기밀도)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(하. 비중)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(거. n-옥탄올/물분배계수 (Kow))

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(너. 자연발화온도)

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)(머. 분자량)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(경구)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(경피)

ECHA(흡입)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(피부부식성 또는 자극성)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(심한 눈손상 또는 자극성)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(피부과민성)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(피부과민성)
International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(생식세포변이원성)
OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(생식세포변이원성)
International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(생식독성)
OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(생식독성)
International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(특정 표적장기 독성 (1회 노출))
OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(특정 표적장기 독성 (1회 노출))
International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(특정 표적장기 독성 (반복 노출))
OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(특정 표적장기 독성 (반복 노출))
SIDS(어류)
SIDS(갑각류)
SIDS(조류)
International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(잔류성)
OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(생분해성)

메틸 글루타르산(METHYL GLUTARATE)
IUCLID(경구)
IUCLID(경피)
ECHA 등록자료(피부부식성 또는 자극성)
ECHA 등록자료(심한 눈손상 또는 자극성)
ECOTOX(어류)
ECOTOX(갑각류)
OECD TG 301C, IUCLID(생분해성)

산화규소
TOMES; HAZARDTEXT(경구)
ECHA(경피)
ECHA(흡입)
ECHA(피부부식성 또는 자극성)
(SIDS)(피부과민성)
ACGIH(7th, 2006)(특정 표적장기 독성 (반복 노출))
ECHA(어류)
ECHA(갑각류)
ECHA(조류)

폴리에틸렌(POLYETHYLENE)
HSDB(성상)
ICSC(색상)
ICSC(마. 녹는점/어는점)
ICSC(사. 인화점)
ICSC(하. 비중)
ICSC(너. 자연발화온도)
HSDB(머. 분자량)
RTECS(경구)
RTECS(흡입)
Kochetkova, 1971(특정 표적장기 독성 (1회 노출))

Me. The date of writing. 2021-11-20

C. The number of revisions and the date of final revision.

The number of revisions. 회

Final revision date. 0

D. Guitar.

○ The written Material Safety and Health Data (MSDS) was edited and partially modified by referring to the MSDS provided by the Korea Occupational Safety and Health Agency.
This is the data."