

## 1. Identification

- A. Product name : EPOXY THINNER DR-100L  
 Usage category : Thinner
- B. Recommended Use and Restriction on Use  
 General use : 에폭시 도료 희석제  
 Restriction on use : Restricted to use other than recommended use
- C. Manufacturer / Supplier / distributor information  
 Company name : NOROO Paint & Coatings Co., Ltd.  
 Address : 351, Bakdal-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea  
 Emergency telephone number : +82-31-467-6114

## 2. Hazard identification

- A. GHS Classification  
 Flammable liquids Category 2  
 Acute toxicity (inhalation: vapor) Category 3  
 Carcinogenicity Category 1B  
 Reproductive toxicity Category 2  
 Germ cell mutagenicity Category 1B  
 Chronic aquatic toxicity Category 3  
 Serious eye damage/irritation Category 2A  
 Specific target organ toxicity(Repeated exposure) Category 1  
 Specific target organ toxicity(Repeated exposure) Category 2  
 Skin corrosion/irritation Category 2  
 Aspiration hazard Category 1  
 Aspiration hazard Category 2  
 Acute toxicity (oral) Category 5  
 Acute toxicity (dermal) Category 5

B. GHS label elements

- Hazard symbols



- Signal words : DANGER
- Hazard statements :
- H225 Highly flammable liquid and vapour
  - H331 Toxic if inhaled
  - H350 May cause cancer
  - H361 Suspected of damaging fertility or the unborn child
  - H340 May cause genetic defects
  - H412 Harmful to aquatic life with long lasting effects
  - H319 Causes serious eye irritation
  - H372 Prolonged or repeated exposure may cause lung damage to the body (Refer Section SDS 11)
  - H373 Prolonged or repeated exposure may cause damage to the liver, testes, skin, respiratory system, blood and central nervous system of the body (Refer Section SDS 11)
  - H315 Causes skin irritation
  - H304 May be fatal if swallowed and enters airways
  - H305 May be harmful if swallowed and enters airways
  - H303 May be harmful if swallowed.
  - H313 May be harmful in contact with skin.
- Precautionary statements
- Prevention
    - P210 Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. no smoking
    - P223 Do not contact with water
    - P240 Ground container and receiving equipment
    - P241 Use explosion-proof equipment (electricity, ventilation, lighting, etc.)
    - P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
    - P243 Take precautionary measures against static discharge.
    - P280 Wear protective gloves/protective clothing/eye protection/face protection.
    - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
    - P271 Use only outdoors or in a well-ventilated area.
    - P201 Obtain special instructions before use.
    - P202 Do not handle until all safety precautions have been read and understood.
    - P273 Avoid release to the environment.
    - P264 Wash hands and contact areas thoroughly after handling.
    - P260 Do not breathe dust/fume/gas/mist/vapours/spray.
    - P270 Do not eat, drink or smoke when using this product.
  - Response
    - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse

skin with water/shower.

P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P310 Immediately call a POISON CENTER or doctor/physician.

P321 Specific treatment

P308+P313 If exposed or concerned: Get medical advice / attention.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists, get medical attention / attention.

P314 Get medical advice/attention if you feel unwell.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash before reuse.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331 Do NOT induce vomiting.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

- Storage

P403+P235 Store in a well-ventilated place. Keep cool.

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

P405 Save by locking.

- Disposal

P501 Dispose of the contents and containers in accordance with waste-related laws.

C. Other hazards which do not result in classification : (NFPA Classification)

Chemical Name	NFPA grade	Health	Flammability	Reactivity	GHS Classification
Toluene		2	3	0	H225, H303, H304, H313, H315, H319, H361, H373
2-Butoxyethanol		3	2	0	H225, H303, H313, H315, H319, H331
n-Butyl alcohol		2	3	0	H225, H303, H305, H313, H315, H319, H372
Xylene		NO DATA	NO DATA	NO DATA	H225, H303, H304, H313, H315, H319, H331, H372
Solvent naphtha (petroleum), light arom.		1	2	0	H225, H303, H304, H313, H340, H350, H412
Ethylbenzene		2	3	0	H225, H303, H304, H313, H315, H319, H331, H373

3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS-NO	Content(%)
Toluene	Toluene	108-88-3	56~66
2-Butoxyethanol	2-Butoxyethanol	111-76-2	12~22
n-Butyl alcohol	n-Butyl alcohol	71-36-3	7~17
Xylene	Xylene	1330-20-7	7~17
Solvent naphtha (petroleum), light arom.	Solvent naphtha (petroleum), light arom.	64742-95-6	3~13
Ethylbenzene	Ethylbenzene	100-41-4	1~10

4. First-aid measures

A. Eye Contact : Flush exposed eyes with plenty of water for more than 15minutes.

If irritation, pain, swelling, tears or glaring happens, take medical assistant immediately

Do not rub your eyes.

If you wear a contact lenses, remove them first.

B. Skin Contact : Remove exposed clothing, and wash off exposed area with soap and water.

If symptoms like irritation or pain occurs, take medical assistant immediately.

Wash off with soap and water for more than 15 minutes. And take medical assistant immediately.

If symptoms like redness or irritation occurs, take medical assistant immediately.

Wash carefully after handling.

Wear gloves while washing the patient and avoid contact with exposed clothes.

C. Inhalation : Avoid from exposure, and move into an area with fresh air.

If not breathing, perform the artificial respiration.

If inhaled or swallowed, do not perform the inhalation phase of breathing

Perform the artificial respiration, using the pocket mask with one way valves or other respiratory medical devices.

If hard to breathe, administering oxygen

Remove contaminated clothing and shoes, and isolate it.

Take a medical assistant immediately.

D. Ingestion Contact : Inducing vomit.

If unconscious, do not induce vomiting. In case of vomiting, keep head down under hip to prevent lung inhalation.

If ingested large quantity, take medical assistant.

Take proper medical assistant by symptoms.

It is need to be considered that early removal of some ingested material by gastric lavage must be weighed against potential complications of bleeding or perforation

Flush mouth with water immediately.

E. Notes to Physician : There is no specific antidote and take an appropriate medical treatment.

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## 5. Fire-fighting measures

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A. Suitable (Unsuitable) extinguishing media

○ Suitable extinguishing media : Powder extinguishing agent, gaseous Extinguishing Agent, and regular foam.

○ (Unsuitable) extinguishing media : Avoid digestion using direct water.

Avoid use waterjet as fire extinguishing agent.

Avoid extinguishing fire with halogenating agent.

○ Case of big fire : Spread large amount of the extinguishing agent as a mist form with staying against wind.

Stay away more than 800m to avoid tank explosion.

Use appropriate protective device depend on the situation.

B. Specific hazards arising from the chemical

○ Pyrolysate : Carbon dioxide, toxic carbon compounds/Nitrogen compounds/sulfur compounds

Irritating and highly toxic gases may produced during the combustion by pyrolysis or combustion itself.

○ Fire and Explosion danger : Risk of medium-sized fire.

Aqueous (Exclude water-soluble one) products does not have risk of fire or explosion hazard by itself.

Vapor may be released to the ignition source and ignited.

May form explosive mixture at or above ignition point

Container may explode when heating

Leakages may fire / explosion hazard and could be easily ignited by heat, sparks or flames.

Vapors may explode indoors, outdoors, and in drains

C. Special protective actions for fire-fighters

○ Personal Precautions, protective equipment : Gas mask or air respirator, heat resistant clothing, heat resistant helmet, heat resistant gloves, heat resistant boots

○ Emergency procedures : Use appropriate extinguishing agents to catch fire.

If there is no risk, moving containers away from fire.

Cooling containers with water long time after extinguish fire.

Block the area except for the fire-suppression personnel.

Protect others from access and prohibit access to dangerous areas.

Tell the fire department, location of the fire and the hazardous features.

Use an unmanned fire extinguishing device, in case of large-sized fire. If not, leave it to burn.

Avoid inhalation of the substance or combustion products.

Do not approach if the tank is on fire.

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## 6. Accidental release measures

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A. Personal Precautions, protective equipment and emergency procedures

○ Personal Precautions, protective equipment : Gas mask for organic gases, other appropriate protective device / clothing / gloves.

○ Emergency procedures : Take an action to block the leakage if there is no risk.

Spray water to reduce amount of steam.

Do work with the personal protected devices such as gas mask for organic gases other appropriate protective devices / clothing / gloves.

Do not contact on the bare skin

B. Environmental precautions

○ Atmosphere : Do install the local ventilations and full ventilation system

Using local ventilation to Minimize the exposure to worker.

○ Soil : Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers.

Use absorbent to collect the appropriate container.

○ Under water : Use absorbent to collect the appropriate container.

Collect spilled material with mechanic devices

C. Methods and materials for containment and cleaning up

○ Small spill : Absorb for use sand or other non-combustible material.

Move to appropriate container for disposal of spilled material collected.

○ Large spill : Prohibit access of unnecessary people, isolate hazard area to secure.

Notify to central and local government, when emissions are above regulation.

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## 7. Handling and storage

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A. Precautions for safe handling : Keep or handle followed by Dangerous goods Safety Management Act

Ground for preventing the static discharge

Seal the container for minimizing the petroleum steam

Use local ventilations and a full ventilation system when handling

Wash carefully after handling.

Avoid contact with prohibited materials in mixture.

Do not handle until read and understood all safety precautions.

Do not inhale vapor for long-term or repeatedly.

Avoid contact with heat, sparks, flames or other sources of ignition.

Do not take contaminated clothings away from the work area.

Storing with combustible substances such as stained clothes or paper may cause fire by spontaneous ignition. Thus do not stack it, and keep it in a non-flammable container with cap filled with water and dispose it.

B. Conditions for safe storage, including any incompatibilities : Because of evaporation and contamination concerns, airtight the container and store in a well-ventilated building.

Avoid direct sunlight while storing outdoor.

Storage temperature: 5 ~ 35 °C

Avoid strong oxidizing agents, acid.

Stored in an isolated place, freezing caution, high temperature body caution.

Storage temperature: 5 ~ 15 °C

Storage temperature: 15 ~ 25 °C

Storage temperature: 25 ~ 35 °C

Store in a cool, dry, well-ventilated area.

Check periodically for leaks

Store in accordance with all current law and regulations.

Store in original container only.

Prevent static electricity and do not store near heat sources.

Collect in an airtight container to dispose.

Store away from waterworks and sewers.

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## 8. Exposure controls/personal protection

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### A. Exposure Limits

Toluene

- ACGIH : NO DATA

- Biological exposure indices : 血液中 Toluene : 0.02 mg/L(工作前), 尿中 Toluene : 0.03 mg/L(工作后), 尿中(with hydrolysis) o-Cresol : 0.3 mg/g creatinine(工作后)

2-Butoxyethanol

- ACGIH : TWA, 20 ppm (97 mg/m<sup>3</sup>)

- Biological exposure indices : 尿中 Butoxyacetic acid (BAA)(with hydrolysis) : 200 mg/g creatinine(工作后)

n-Butyl alcohol

- ACGIH : NO DATA

- Biological exposure indices : NO DATA

Xylene

- ACGIH : NO DATA

- Biological exposure indices : 尿中 Methylhippuric acids : 1.5 g/g creatinine(工作后)

Solvent naphtha (petroleum), light arom.

- ACGIH : NO DATA

- Biological exposure indices : NO DATA

Ethylbenzene

- ACGIH : NO DATA

- Biological exposure indices : 尿中 (Mandelic acid, Phenylglyoxylic acids 合计) : 0.15 g/g creatinine(工作后)

### B. Engineering Controls :

▷ Do install the local ventilations and full ventilation system

▷ Using local ventilation to Minimize the exposure to worker.

▷ NO DATA

▷ NO DATA

### C. Personal Protective Equipment

Respiratory protection : Respirators should be authorized by Korea Occupational Safety and Health Agency

Use the personal protect respirator for organic solvent or higher level of capacity when workers are supposed to be exposed under unsuitable respiratory working condition, or longer period exposure than standard level.

Consider warning properties before use.

Respiratory protection may be needed, while frequent use or heavy exposure.

Respiratory protection is ranked in order from minimum to maximum

If there is possibility of direct contact or exposure to these substances should wear a authorized dust-proof mask or respirator for organic compounds

Eye protection : Use the respirator for organic solvent or higher level.

Install washing facilities and an emergency washing facilities close to workplace.

Let workers do wear the safety glasses in case hazard caused by mist may be expected.

If there is possibility of direct contact or exposure to these substances should wear authorized safety glasses or mask.

Hand protection : Do the workers wear the impermeable protective gloves made from rubber/PVC due to skin irritation may be supposed by chronicle and long period exposure.

Wear the chemical protective gloves

Wear appropriate protective gloves

If there is possibility of direct contact or exposure to these substances should wear authorized safety gloves for chemicals.

Skin protection : Work after wearing the impermeable protective apron made by rubber/PVC in case hazard caused by exposure or spill, wear the impermeable whole body protective clothing if needed.

Wear appropriate chemical protective clothing.

Wear cleanroom garment or appropriate protective clothing to prevent contamination

If there is a possibility of direct contact or exposure to the substance Wear protective clothing for chemical substances

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## 9. Physical and chemical properties

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A. Appearance : 무색투명 액체

B. Odor : 방향족냄새, 특취

- C. Odor threshold : 자료없음  
D. PH : 자료없음  
E. Melting point/Freezing point(℃) : 자료없음  
F. Initial Boiling Point/Boiling Ranges(℃) : 117~274℃  
G. Flash point(℃) : 7  
H. Evaporating Rate : 자료없음  
I. Flammability(solid, gas)(℃) : 자료없음  
J. Upper/Lower Flammability or explosive limits : 자료없음  
K. Vapour pressure : 자료없음  
L. Solubility : 물)0.6%  
M. Vapour density : 자료없음  
N. Specific gravity : 0.9±0.1  
O. Partition coefficient of n-octanol/water : 자료없음  
P. Autoignition temperature(℃) : 자료없음  
Q. Decomposition temperature(℃) : 자료없음  
R. Viscosity : 자료없음  
S. Molecular weight : 자료없음

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## 10. Stability and reactivity

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- A. Chemical stability : NO DATA  
B. Possibility of hazardous reactions : Do not contact with heat, spark, flame or other flammable sources  
Avoid contaminants and friction  
C. Conditions to avoid : Oxidation agent, metal and combustible materials  
D. Hazardous decomposition products : Thermal decomposition products (carbon etc..)

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## 11. Toxicological information

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- A. Information on the likely routes of exposure  
 Respiratory tracts : Adverse lung effects, Dyspnoea, Hypothermia, Vomiting  
 Oral : Vomiting, Diarrhea, Stomach pain, Irregular heartbeat  
 Skin : Irritation, Burn, Adverse nerve effects  
 Eye : Irritation, eye damage
- B. Delayed and immediate effects and also chronic effects from short and long term exposure  
 Toluene  
- Acute toxicity  
Oral : rat LD50=2600 mg/kg  
Dermal : rabbit LD50=12,000 mg/kg  
Inhalation : rabbit LD50=12,000 mg/kg  
- Skin corrosion/irritation : Rabbit skin irritation test using the results of the Causes moderate irritation.  
- Serious eye damage/irritation : Eyes irritant test using a rabbit raised for 6 days reversible irritation.  
- Respiratory sensitization : NO DATA  
- Skin sensitization : Tests with negative results Guinea  
- Carcinogenicity  
IARC : Group 3  
OSHA : NO DATA  
ACGIH : A4  
NTP : NO DATA  
EU CLP : NO DATA  
- Germ cell mutagenicity : Dominant lethal test negative, positive micronucleus test, chromosome aberration test positive  
- Reproductive toxicity : Dominant lethal test negative, positive micronucleus test, chromosome aberration test positive  
- STOT-single exposure : Causes acts on the central nervous system in humans, fatigue, drowsiness, dizziness, respiratory irritation, agitation, vomiting, central nervous system depression, confusion, gait abnormalities. Eyes, nose, causing irritation of the throat. In experimental animals  
- STOT-repeated exposure : Headaches accompanied by people from hearing loss or visual field constriction, or nystagmus, tremor, ataxia, loss of memory, such as chronic central nervous system disorder that appears. Noewichuk is observed. It appears kidney dysfunction such as hematuria or pro  
- Aspiration hazard : NO DATA  
 2-Butoxyethanol  
- Acute toxicity  
Oral : LD50 1414 mg/kg Guinea pig (OECD TG 401, GLP)  
Dermal : LD50 >2000 mg/kg Rat (ECHA)  
Inhalation : Vapor LC50 >7.4 mg/ℓ 7 hr Rat (ECHA)  
- Skin corrosion/irritation : As a result of skin irritation test using rabbits, it is erythema irritation 2, which is not applicable under the GHS standard, but it is sufficient to determine that it is irritating EU Method B.4 (ECHA)  
- Serious eye damage/irritation : Eye irritation test results showed conjunctival irritation index 2.6, iritis

- 0.56, conjunctival edema 1.8, indicating irritation OECD TG405, GLP (ECHA)
- Respiratory sensitization : NO DATA
- Skin sensitization : Skin sensitization test results using guinea pigs non-sensitization (OECD TG 406, ECHA)
- Carcinogenicity
  - IARC : Group 3
  - OSHA : NO DATA
  - ACGIH : A3
  - NTP : NO DATA
  - EU CLP : NO DATA
- Germ cell mutagenicity : Reverse mutation test using in vitro microorganisms OECD TG471, chromosomal abnormality test using mammalian cells OECD TG473 result negative, micronucleus test using mammalian bone marrow cells in vivo OECD TG474 result negative (ECHA)
- Reproductive toxicity : 2nd generation reproductive toxicity test (NTP) results, NOAEL (parental toxicity) = 720 mg/kg bw/day due to weight loss, fertility, etc., NOAEL (F1, F2) = 720 mg/kg bw/ due to weight loss of offspring day, no effect on reproductive toxicity was observed, developmental toxicity and teratogenic effects were not observed as a result of developmental toxicity test using rats (OECD TG414) NOAEL (development) = 100 mg/kg bw/day, NOAEL (teratogenicity) > 200 mg/kg bw/day (ECHA)
- STOT-single exposure : As a result of respiratory irritation test using mice, RD50 2818 ppm showed minimal or no sensory stimulation (ECHA)
- STOT-repeated exposure : As a result of a 90-day repeated oral toxicity test in rats, OECD TG408 showed some abnormalities in liver and cytoplasm in histopathological findings, but no adverse effects were observed. NOAEL male <69 mg/kg bw/day, NOAEL female <82 mg/kg bw/day 90-day inhalation repeat toxicity test using mice OECD TG413, GLP Results NOAEC <31ppm (ECHA)
- Aspiration hazard : NO DATA
- n-Butyl alcohol
  - Acute toxicity
    - Oral : LD50 = 790 mg/kg Rat
    - Dermal : LD50 = 3402 mg/kg rabbit
    - Inhalation : LD50 = 3402 mg/kg rabbit
  - Skin corrosion/irritation : (in rabbit) skin Irritation test result middle Irritation
  - Serious eye damage/irritation : Using the rabbit eye irritation test results - Severe irritation
  - Respiratory sensitization : NO DATA
  - Skin sensitization : NO DATA
  - Carcinogenicity
    - IARC : NO DATA
    - OSHA : NO DATA
    - ACGIH : NO DATA
    - NTP : NO DATA
    - EU CLP : NO DATA
  - Germ cell mutagenicity : Using mammalian erythrocytes Micronucleustest Negative
  - Reproductive toxicity : Using mammalian erythrocytes Micronucleustest Negative
  - STOT-single exposure : By inhalation in humans and pharyngeal irritation headache appears. Narcotic effects in animal experiments appears or suppress the central nervous system.
  - STOT-repeated exposure : NO DATA
  - Aspiration hazard : N-3 to 14 carbon atoms in the alcohols individual
- Xylene
  - Acute toxicity
    - Oral : LD50=3550 mg/kg rat
    - Dermal : LD50 4350 mg/kg Rabbit
    - Inhalation : LD50 4350 mg/kg Rabbit
  - Skin corrosion/irritation : Skin irritation test in rabbits Causes moderate irritation.
  - Serious eye damage/irritation : Skin irritation test in rabbits Causes moderate irritation.
  - Respiratory sensitization : NO DATA
  - Skin sensitization : NO DATA
  - Carcinogenicity
    - IARC : Group 3
    - OSHA : NO DATA
    - ACGIH : A4
    - NTP : NO DATA
    - EU CLP : NO DATA
  - Germ cell mutagenicity : If three people a voice dynamics, somatic cell mutagenicity tests in vivo (micronucleus test, chromosome test) Voice
  - Reproductive toxicity : If three people a voice dynamics, somatic cell mutagenicity tests in vivo (micronucleus test, chromosome test) Voice
  - STOT-single exposure : NO DATA
  - STOT-repeated exposure : NO DATA
  - Aspiration hazard : In the liquid can cause chemical pneumonia if swallowed.
- Solvent naphtha (petroleum), light arom.
  - Acute toxicity
    - Oral : LD50 = 8400 mg/kg Rat
    - Dermal : LD50 > 2000 mg/kg Rabbit
    - Inhalation : LD50 > 2000 mg/kg Rabbit
  - Skin corrosion/irritation : weakstimulus(rabbit)
  - Serious eye damage/irritation : Mild irritant(rabbit)
  - Respiratory sensitization : NO DATA
  - Skin sensitization : Non-sensitizer (Guinea pig)
  - Carcinogenicity
    - IARC : NO DATA
    - OSHA : NO DATA
    - ACGIH : NO DATA
    - NTP : NO DATA
    - EU CLP : Carc. 1B

- Germ cell mutagenicity : EU CLP: 1B (case containing less than 0.1% of the benzene in a weight ratio of the material not applied to the present classification)
- Reproductive toxicity : EU CLP: 1B (case containing less than 0.1% of the benzene in a weight ratio of the material not applied to the present classification)
- STOT-single exposure : Affecting the central nervous system. Inhalation of high concentrations vapors may cause loss of consciousness.
- STOT-repeated exposure : NO DATA
- Aspiration hazard : Harmful aspiration concerns
- Ethylbenzene
  - Acute toxicity
    - Oral : LD50 = 3500 mg/kg Rat
    - Dermal : LD50 = 15400 mg/kg Rabbit
    - Inhalation : Steam LC50 = 4000 ppm 4 hr Rat (Equivalents : 17.4 mg/L)
  - Skin corrosion/irritation : skin Irritation test result weak Irritation
  - Serious eye damage/irritation : Rabbit eye irritation test results in a slight conjunctival irritation, recoverable damage.
  - Respiratory sensitization : NO DATA
  - Skin sensitization : NO DATA
  - Carcinogenicity
    - IARC : Group 2B
    - OSHA : NO DATA
    - ACGIH : A3
    - NTP : NO DATA
    - EU CLP : NO DATA
  - Germ cell mutagenicity : Micronucleustest Negative (7)
  - Reproductive toxicity : Micronucleustest Negative (7)
  - STOT-single exposure : It causes central nervous system effects in laboratory animals and airway irritation.
  - STOT-repeated exposure : NO DATA
  - Aspiration hazard : Hydrocarbons. Swallowing the liquid by aspiration may cause chemical pneumonia. Ties seongryul 0.74 mm<sup>2</sup> / s (25 °C)

## 12. Ecological information

### A. Ecotoxicity

- Toluene
  - Fish : LC50 24 mg/ℓ 96 hr Oncorhynchus mykiss
  - Crustaceans : EC50 11.5 mg/ℓ 48 hr Daphnia magna
  - Algae : NO DATA
- 2-Butoxyethanol
  - Fish : LC50 1474 mg/ℓ 96 hr Oncorhynchus mykiss(OECD Guideline 203)
  - Crustaceans : EC50 1800 mg/ℓ 48 hr Daphnia magna(OECD TG 202)
  - Algae : EC50 911 mg/ℓ 72 hr Selenastrum capricornutum(OECD TG 201)
- n-Butyl alcohol
  - Fish : LC50 > 100 mg/ℓ 96 hr
  - Crustaceans : EC50 = 1983 mg/ℓ 48 hr
  - Algae : EC50 = 28 mg/ℓ 48 hr
- Xylene
  - Fish : NO DATA
  - Crustaceans : NO DATA
  - Algae : NO DATA
- Solvent naphtha (petroleum), light arom.
  - Fish : LC50 = 9.22 mg/ℓ 96 hr Oncorhynchus mykiss
  - Crustaceans : EC50 = 6.14 mg/ℓ 48 hr Daphnia magna
  - Algae : EC50 = 19 mg/ℓ 72 hr Selenastrum capricornutum
- Ethylbenzene
  - Fish : LC50 = 9.09 mg/ℓ 96 hr
  - Crustaceans : LC50 = 0.4 mg/ℓ 96 hr
  - Algae : NO DATA

### B. Persistence and degradability

- Toluene
  - Persistence : log Kow 2.73
  - Degradability : NO DATA
- 2-Butoxyethanol
  - Persistence : 0.81 log Kow (25 ° C, pH=7, BASF standard method)
  - Degradability : NO DATA
- n-Butyl alcohol
  - Persistence : NO DATA
  - Degradability : NO DATA
- Xylene
  - Persistence : NO DATA
  - Degradability : NO DATA
- Solvent naphtha (petroleum), light arom.
  - Persistence : log Kow = 2.1 ~ 6 (Estimates)
  - Degradability : BOD5/COD = 0.43
- Ethylbenzene
  - Persistence : NO DATA
  - Degradability : NO DATA

### C. Bioaccumulative potential

- Toluene
  - Bioaccumulative potential : NO DATA

- Biodegradation : 86 (%) 20 day
  - 2-Butoxyethanol
    - Bioaccumulative potential : NO DATA
    - Biodegradation : 90.4 % 28 day (OECD TG 301G)
  - n-Butyl alcohol
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
  - Xylene
    - Bioaccumulative potential : NO DATA
    - Biodegradation : 39 (%)
  - Solvent naphtha (petroleum), light arom.
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
  - Ethylbenzene
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
- D. Mobility in soil
- Toluene
    - ▷ NO DATA
  - 2-Butoxyethanol
    - ▷ NO DATA
  - n-Butyl alcohol
    - ▷ NO DATA
  - Xylene
    - ▷ log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)
  - Solvent naphtha (petroleum), light arom.
    - ▷ NO DATA
  - Ethylbenzene
    - ▷ log Kow = 3.15 (11)
- E. Other adverse effects
- Toluene
    - ▷ NO DATA
  - 2-Butoxyethanol
    - ▷ Fish Danio rerio: NOEC14d>100 mg/L OECD TG 204, Crustacean Daphnia magna: NOEC21d=100 mg/L OECD TG 211 (ECHA)
  - n-Butyl alcohol
    - ▷ NO DATA
  - Xylene
    - ▷ NO DATA
  - Solvent naphtha (petroleum), light arom.
    - ▷ NO DATA
  - Ethylbenzene
    - ▷ NO DATA

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### 13. Disposal considerations

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- A. Disposal methods : Disposal material should keep in the airtight container, and consign according to Waste Material Management Act  
 Pre-treat with oil-water separation method when it is available.  
 Recycle the recyclable materials, such as organic solvents, and then incinerate the residue at high temperature.  
 To prevent environmental pollution, dispose it to a licensed waste disposal company.
- B. Special precautions for disposal : Prohibit the unauthorized disposal and incineration due to adversely affect natural ecosystems  
 Discard it followed by appropriate regulations

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### 14. Transport information

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- A. UN number : 1263
- B. Proper shipping name : Paint (including paint, lacquer, enamel, colorants, shellac solutions, varnish, polish, liquid filler and liquid lacquer sealer) or related materials (including paint diluent and reductant).
- C. Hazard class : 3
- D. Packing group : II
- E. Marine pollutant : N/A
- F. Special precautions for user related to transport or transportation measures
- EmS FIRE SCHEDULE : F-E
  - EmS SPILLAGE SCHEDULE : S-E

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### 15. Regulatory information

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- Toluene
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : notapplicable
    - ▷ CERCLA Section 103 (40CFR302.4) : 453.599 kg 1000 lb
    - ▷ EPCRA Section 302 (40CFR355.30) : notapplicable



- ▷ EPCRA Section 304 (40CFR355.40) : notapplicable
  - ▷ EPCRA Section 313 (40CFR372.65) : pertinent
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA
- 2-Butoxyethanol
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : NO DATA
    - ▷ CERCLA Section 103 (40CFR302.4) : NO DATA
    - ▷ EPCRA Section 302 (40CFR355.30) : NO DATA
    - ▷ EPCRA Section 304 (40CFR355.40) : NO DATA
    - ▷ EPCRA Section 313 (40CFR372.65) : NO DATA
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA
- n-Butyl alcohol
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : notapplicable
    - ▷ CERCLA Section 103 (40CFR302.4) : 2267.995 kg 5000 lb
    - ▷ EPCRA Section 302 (40CFR355.30) : notapplicable
    - ▷ EPCRA Section 304 (40CFR355.40) : notapplicable
    - ▷ EPCRA Section 313 (40CFR372.65) : pertinent
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA
- Xylene
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : notapplicable
    - ▷ CERCLA Section 103 (40CFR302.4) : 45.3599 kg 100 lb
    - ▷ EPCRA Section 302 (40CFR355.30) : notapplicable
    - ▷ EPCRA Section 304 (40CFR355.40) : notapplicable
    - ▷ EPCRA Section 313 (40CFR372.65) : pertinent
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA
- Solvent naphtha (petroleum), light arom.
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : notapplicable
    - ▷ CERCLA Section 103 (40CFR302.4) : notapplicable
    - ▷ EPCRA Section 302 (40CFR355.30) : notapplicable
    - ▷ EPCRA Section 304 (40CFR355.40) : notapplicable
    - ▷ EPCRA Section 313 (40CFR372.65) : notapplicable
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA
- Ethylbenzene
  - Information of EU Classification
    - ▷ Classification : NO DATA
    - ▷ Risk Phrases : NO DATA
    - ▷ Safety Phrase : NO DATA
  - U.S. Federal regulations
    - ▷ OSHA PROCESS SAFETY (29CFR1910.119) : notapplicable
    - ▷ CERCLA Section 103 (40CFR302.4) : 453.599 kg 1000 lb
    - ▷ EPCRA Section 302 (40CFR355.30) : notapplicable
    - ▷ EPCRA Section 304 (40CFR355.40) : notapplicable
    - ▷ EPCRA Section 313 (40CFR372.65) : pertinent
  - Rotterdam Convention listed ingredients : NO DATA
  - Stockholm Convention listed ingredients : NO DATA
  - Montreal Protocol listed ingredients : NO DATA

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## 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 : 2015-07-23

C. Revision number and Last date revised : 1.(2022-08-24)

D. Other : " [WWW.NOROO.CO.KR](http://WWW.NOROO.CO.KR) "