

## 1. Identification

- A. Product name : CLEANPOXY WATERPOOL (BASE) (BLUE)  
 Usage category : No Data
- B. Recommended Use and Restriction on Use  
 General use : Top coating for undercoated steel and concrete  
 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 3  
Acute toxicity (inhalation: vapor) Category 3  
Carcinogenicity Category 1B  
Germ cell mutagenicity Category 1B  
Serious eye damage/irritation Category 2A  
Specific target organ toxicity(Repeated exposure) Category 2  
Skin sensitization Category 1(1A, 1B)  
Skin corrosion/irritation Category 2

B. GHS label elements

- Hazard symbols



- Signal words : DANGER

- Hazard statements :

H226 Flammable liquid and vapour  
H331 Toxic if inhaled  
H350 May cause cancer  
H340 May cause genetic defects  
H319 Causes serious eye irritation  
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)  
H317 May cause an allergic skin reaction  
H315 Causes skin irritation

- 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.  
P264 Wash hands and contact areas thoroughly after handling.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.

- 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.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

- P362+P364 Take off contaminated clothing and wash before reuse.  
 P332+P313 If skin irritation occurs: Get medical advice/attention.
- Storage
    - P403+P235 Store in a well-ventilated place. Keep cool.
    - P403+P233 Store in a well-ventilated place. Keep container tightly closed
    - P405 Seal 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
Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin		1	1	0
Barium sulfate, natural		1	0	0
2-Butoxyethanol		3	2	0
Rutile(TiO2)		1	0	0
Xylene		NO DATA	NO DATA	NO DATA
Trade secret		NO DATA	NO DATA	NO DATA
Propylene glycol methyl ether		0	3	0
Solvent naphtha (petroleum), light arom.		1	2	0

### 3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS-NO	Content(%)
Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin	Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin	67989-52-0	29~39
Barium sulfate, natural	Barium sulfate, natural	7727-43-7	28~38
2-Butoxyethanol	2-Butoxyethanol	111-76-2	11~21
Rutile(TiO2)	Rutile(TiO2)	1317-80-2	8~18
Xylene	Xylene	1330-20-7	4~14
Trade secret	-	-	1~10
Propylene glycol methyl ether	Propylene glycol methyl ether	107-98-2	1~10
Solvent naphtha (petroleum), light arom.	Solvent naphtha (petroleum), light arom.	64742-95-6	0.1~4

### 4. First-aid measures

- A. Eye Contact : If irritation, pain, swelling, tears or glaring happens, take medical assistant immediately Flush exposed eyes with plenty of water for more than 15minutes.
- B. Skin Contact : Wash off with soap and water for more than 15 minutes. And take medical assistant immediately. If symptoms like irritation or pain occurs, take medical assistant immediately. Remove exposed clothing, and wash off exposed area with soap and water.
- C. Inhalation : Take a medical assistant immediately. Remove contaminated clothing and shoes, and isolate it. If hard to breathe, administering oxygen Perform the artificial respiration, using the pocket mask with one way valves or other respiratory medical devices. If inhaled or swallowed, do not perform the inhalation phase of breathing If not breathing, perform the artificial respiration. Avoid from exposure, and move into an area with fresh air.
- D. Ingestion Contact : 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 Take proper medical assistant by symtoms. If ingested large quantity, take medical assistant. If unconscious, do not induce vomiting. In case of vomiting, keep head down under hip to prevent lung inhalation. Inducing vomit.
- E. Notes to Physician : There is no specific antidote and take an appropriate medical treatment.

### 5. Fire-fighting measures

- A. Suitable (Unsuitable) extinguishing media
- Suitable extinguishing media : Powder extinguishing agent, gaseous Extinguishing Agent, and regular foam.
  - (Unsuitable) extinguishing media : Water is not appropriate extinguishing agent
  - Case of big fire : Use appropriate protective device depend on the situation. Stay away more than 800m to avoid tank explosion. Spread large amount of the extinguishing agent as a mist form with staying against wind.
- B. Specific hazards arising from the chemical
- Pyrolysate : Carbon dioxide, toxic carbon compounds/Nitrogen compounds/sulfur compounds
  - Fire and Explosion danger : Risk of medium-sized fire.
- 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 : Block the area except for the fire-suppression personnel. Cooling containers with water long time after extinguish fire. If there is no risk, moving containers away from fire. Use appropriate extinguishing agents to catch fire.

### 6. Accidental release measures

- 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 : Do not contact on the bare skin Do work with the personal protected devices such as gas mask for organic gases other appropriate protective devices / clothing / gloves. Spray water to reduce amount of steam. Take an action to block the leakage if there is no risk.

B. Environmental precautions

- Atmosphere : Using local ventilation to Minimize the exposure to worker. Do install the local ventilations and full ventilation system
- Soil : Use absorbent to collect the appropriate container. Trap spilled material at bottom in deep pockets, excavated holding areas or within sand bag barriers.
- Under water : Collect spilled material with mechanic devices Use absorbent to collect the appropriate container.

C. Methods and materials for containment and cleaning up

- Small spill : Move to appropriate container for disposal of spilled material collected. Absorb for use sand or other non-combustible material.
- Large spill : Notify to central and local government, when emissions are above regulation. Prohibit access of unnecessary people, isolate hazard area to secure.

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## 7. Handling and storage

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A. Precautions for safe handling : Use local ventilations and a full ventilation system when handling Seal the container for minimizing the petroleum steam Ground for preventing the static discharge Keep or handle followed by Dangerous goods Safety Management Act

B. Conditions for safe storage, including any incompatibilities : Stored in an isolated place, freezing caution, high temperature body caution. Avoid strong oxidizing agents, acid. Storage temperature: 5 ~ 35 °C Avoid direct sunlight while storing outdoor. Because of evaporation and contamination concerns, airtight the container and store in a well-ventilated building.

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## 8. Exposure controls/personal protection

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A. Exposure Limits

- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- Barium sulfate, natural
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- 2-Butoxyethanol
  - ACGIH : TWA, 20 ppm (97 mg/m<sup>3</sup>)
  - Biological exposure indices : While urinating - Butoxyacetic acid (BAA)(with hydrolysis) : 200 mg/g (After work)
- Rutile(TiO<sub>2</sub>)
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- Xylene
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- Trade secret
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- Propylene glycol methyl ether
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA
- Solvent naphtha (petroleum), light arom.
  - ACGIH : NO DATA
  - Biological exposure indices : NO DATA

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 : 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. Respirators should be authorized by Korea Occupational Safety and Health Agency
- Eye protection : Let workers do wear the safety glasses in case hazard caused by mist may be expected. Install washing facilities and an emergency washing facilities close to workplace. Use the respirator for organic solvent or higher level.
- Hand protection : Wear the chemical protective gloves 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.
- Skin protection : Wear appropriate chemical protective clothing. 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.

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## 9. Physical and chemical properties

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A. Appearance : liquid

B. Odor : solvent odor

- C. Odor threshold : NO DATA
- D. PH : NO DATA
- E. Melting point/Freezing point(°C) : NO DATA
- F. Initial Boiling Point/Boiling Ranges(°C) : NO DATA
- G. Flash point(°C) : 23
- H. Evaporating Rate : NO DATA
- I. Flammability(solid, gas)(°C) : NON Flammable
- J. Upper/Lower Flammability or explosive limits : NO DATA
- K. Vapour pressure : NO DATA
- L. Solubility : NO DATA
- M. Vapour density : NO DATA
- N. Specific gravity : 1.4±0.2
- O. Partition coefficient of n-octanol/water : NO DATA
- P. Autoignition temperature(°C) : NO DATA
- Q. Decomposition temperature(°C) : NO DATA
- R. Viscosity : 83±10 (KU/25°C)
- S. Molecular weight : NO DATA

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## 10. Stability and reactivity

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- A. Chemical stability : NO DATA
- B. Possibility of hazardous reactions : Avoid contaminants and friction Do not contact with heat, spark, flame or other flammable sources
- C. Conditions to avoid : Oxidation agent, metal and combustable 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, Vomitting
  - Oral : Vomitting, 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
- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
    - Acute toxicity
      - Oral : NO DATA
      - Dermal : NO DATA
      - Inhalation : NO DATA
    - Skin corrosion/irritation : Causes of skin stimulus
    - Serious eye damage/irritation : Causes eye 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 : NO DATA
    - Reproductive toxicity : NO DATA
    - STOT-single exposure : NO DATA
    - STOT-repeated exposure : NO DATA
    - Aspiration hazard : NO DATA
  - Barium sulfate, natural
    - Acute toxicity
      - Oral : LD50 > 3000 mg/kg Rat
      - Dermal : NO DATA
      - Inhalation : NO DATA
    - Skin corrosion/irritation : Non-irritating to human
    - Serious eye damage/irritation : e irritation have been reported in humans.
    - 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 : NO DATA
- Reproductive toxicity : NO DATA
- STOT-single exposure : NO DATA
- STOT-repeated exposure : NO DATA
- 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
- Rutile(TiO2)
  - Acute toxicity
    - Oral : LD50 > 24000 mg/kg Rat
    - Dermal : NO DATA
    - Inhalation : NO DATA
  - Skin corrosion/irritation : NO DATA
  - Serious eye damage/irritation : NO DATA
  - 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 : NO DATA
  - Reproductive toxicity : NO DATA
  - STOT-single exposure : NO DATA
  - STOT-repeated exposure : This risk may be increased by exposure to a case : Respiratory disorders
  - Aspiration hazard : NO DATA
- 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.
- Trade secret
  - Acute toxicity

- Oral : NO DATA
- Dermal : NO DATA
- Inhalation : NO DATA
- Skin corrosion/irritation : NO DATA
- Serious eye damage/irritation : NO DATA
- 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 : NO DATA
- Reproductive toxicity : NO DATA
- STOT-single exposure : NO DATA
- STOT-repeated exposure : NO DATA
- Aspiration hazard : NO DATA
- Propylene glycol methyl ether
  - Acute toxicity
    - Oral : LD50 > 5000 mg/kg Rat
    - Dermal : LD50 = 13000 mg/kg Rabbit
    - Inhalation : LD50 = 13000 mg/kg Rabbit
  - Skin corrosion/irritation : The test is applied to rabbit skin appears extremely weak Irritation.
  - Serious eye damage/irritation : High concentrations of vapor is irritating to represent not strong.
  - Respiratory sensitization : NO DATA
  - Skin sensitization : Using guinea pig skin sensitization test results - negative
  - Carcinogenicity
    - IARC : NO DATA
    - OSHA : NO DATA
    - ACGIH : A4
    - NTP : NO DATA
    - EU CLP : NO DATA
  - Germ cell mutagenicity : Using mouse bone marrow erythrocytes in vivo Micronucleus test - Negative
  - Reproductive toxicity : Using mouse bone marrow erythrocytes in vivo Micronucleus test - Negative
  - STOT-single exposure : Rats, mice, rabbits, such as the loss of an external stimulus appears reflections.
  - STOT-repeated exposure : Rats, rabbits, mice, guinea pigs, monkeys and later only a weak reference to a Category 2 suppresses the central nervous system (really), the liver, the kidneys, the effects appear.
  - Aspiration hazard : NO DATA
- 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

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## 12. Ecological information

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### A. Ecotoxicity

- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
  - Fish : NO DATA
  - Crustaceans : NO DATA
  - Algae : NO DATA
- Barium sulfate, natural
  - Fish : NO DATA
  - Crustaceans : EC50 = 32 mg/ℓ 48 hr Daphnia magna
  - Algae : EC50 = 1890.263 mg/ℓ 96 hr
- 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)
- Rutile(TiO2)
  - Fish : LC50 = 35.988 mg/ℓ 96 hr
  - Crustaceans : LC50 = 39.180 mg/ℓ 48 hr

- Algae : EC50 = 24.821 mg/ℓ 96 hr
  - Xylene
    - Fish : NO DATA
    - Crustaceans : NO DATA
    - Algae : NO DATA
  - Trade secret
    - Fish : NO DATA
    - Crustaceans : NO DATA
    - Algae : NO DATA
  - Propylene glycol methyl ether
    - Fish : NO DATA
    - Crustaceans : EC50 > 500 mg/ℓ 48 hr
    - 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
- B. Persistence and degradability
- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
    - Persistence : NO DATA
    - Degradability : NO DATA
  - Barium sulfate, natural
    - Persistence : log Kow = 0.63
    - Degradability : NO DATA
  - 2-Butoxyethanol
    - Persistence : 0.81 log Kow (25 ° C, pH=7, BASF standard method)
    - Degradability : NO DATA
  - Rutile(TiO2)
    - Persistence : NO DATA
    - Degradability : NO DATA
  - Xylene
    - Persistence : NO DATA
    - Degradability : NO DATA
  - Trade secret
    - Persistence : NO DATA
    - Degradability : NO DATA
  - Propylene glycol methyl ether
    - Persistence : NO DATA
    - Degradability : NO DATA
  - Solvent naphtha (petroleum), light arom.
    - Persistence : log Kow = 2.1 ~ 6 (Estimates)
    - Degradability : BOD5/COD = 0.43
- C. Bioaccumulative potential
- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
  - Barium sulfate, natural
    - Bioaccumulative potential : BCF = 3.162
    - Biodegradation : NO DATA
  - 2-Butoxyethanol
    - Bioaccumulative potential : NO DATA
    - Biodegradation : 90.4 % 28 day (OECD TG 301G)
  - Rutile(TiO2)
    - Bioaccumulative potential : BCF = 10.38
    - Biodegradation : NO DATA
  - Xylene
    - Bioaccumulative potential : NO DATA
    - Biodegradation : 39 (%)
  - Trade secret
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
  - Propylene glycol methyl ether
    - Bioaccumulative potential : BCF = 2
    - Biodegradation : Biodegradability = 90 (%) 29 day (Aerobic, industrial sewage, Easily decomposed)
  - Solvent naphtha (petroleum), light arom.
    - Bioaccumulative potential : NO DATA
    - Biodegradation : NO DATA
- D. Mobility in soil
- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
    - ▷ NO DATA
  - Barium sulfate, natural
    - ▷ NO DATA
  - 2-Butoxyethanol
    - ▷ NO DATA
  - Rutile(TiO2)
    - ▷ NO DATA
  - Xylene
    - ▷ log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)
  - Trade secret
    - ▷ NO DATA

- Propylene glycol methyl ether
  - ▷ NO DATA
- Solvent naphtha (petroleum), light arom.
  - ▷ NO DATA
- E. Other adverse effects
  - Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
    - ▷ NO DATA
  - Barium sulfate, natural
    - ▷ 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)
  - Rutile(TiO2)
    - ▷ NO DATA
  - Xylene
    - ▷ NO DATA
  - Trade secret
    - ▷ NO DATA
  - Propylene glycol methyl ether
    - ▷ NO DATA
  - Solvent naphtha (petroleum), light arom.
    - ▷ NO DATA

### 13. Disposal considerations

- A. Disposal methods : Disposal material should keep in the airtighted container, and consign according to Waste Mateial Management Act
- B. Special precautions for disposal : Discard it followed by appropriate regulations Prohibit the unauthorized disposal and incineration due to adversely affect natural ecosystems

### 14. Transport information

- 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 : III
- 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

### 15. Regulatory information

- Fatty acids, (C=18)-unsatd., dimers polymers with bisphenol A and epichlorohydrin
  - 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
- Barium sulfate, natural
  - 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
- 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
- Rutile(TiO2)
  - 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
- 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
- Trade secret
  - 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
- Propylene glycol methyl ether
  - 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
- 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

A. Reference

This MSDS is based on 'Industrial safety and health' Act paragraph 41 and Proclamation of Ministry of Labor and Employment 2016-19, and considered domestic regulations.

This MSDS is based on KOSHA, NITE, ESIS, NLM, SIDS, IPCS, NCIS.

B. Issue date : 2021-01-13

C. Revision number and Last date revised : 1. 2021-01-13

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