MSDS_Number : No Data

1. Identification

A. Product name : CLEANPOXY 3100 (BASE) SOLVENT EPOXY TOP COAT [RAL-7045 (CE)]
○ Usage category : Oil paint

B. Recommended Use and Restriction on Use
○ General use : For 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 4
Carcinogenicity Category 1B
Germ cell mutagenicity Category 1B
Serious eye damage/irritation Category 2A
Specific target organ toxicity(Repeated exposure) Category 1
Skin corrosion/irritation Category 2
Aspiration hazard Category 1
Acute toxicity (oral) Category 5
Acute toxicity (dermal) Category 5

B. GHS label elements
○ Hazard symbols

○ Signal words : DANGER
○ Hazard statements :
H226 Flammable liquid and vapour
H332 Harmful if inhaled
H350 May cause cancer
H340 May cause genetic defects
H319 Causes serious eye irritation
H372 Prolonged or repeated exposure may cause lung damage to the body (Refer Section SDS 11)
H315 Causes skin irritation
H304 May be fatal 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.
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.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
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.
P321 Specific treatment
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.

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

NFPA grade Chemical Name	Health	Flammability	Reactivity	GHS Classification
4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	2	1	0	H303, H313
Xylene	NO DATA	NO DATA	NO DATA	H226, H303, H304, H313, H315, H319, H332, H372
Limestone	1	0	0	H303, H313
Titanium dioxide	1	0	0	H303
Dimethyl carbonate	1	3	1	H226, H303, H313
Petroleum resins	1	1	0	H303, H315, H319
Dodecylphenol, branched	NO DATA	NO DATA	NO DATA	H303
Propylene glycol methyl ether acetate	1	2	0	H226, H303, H313
Ethylbenzene	2	3	0	H226, H303, H304, H313, H315, H319, H332
n-Butyl alcohol	2	3	0	H226, H303, H313, H315, H319, H372
Solvent naphtha (petroleum), light arom.	1	2	0	H226, H303, H304, H313, H340, H350
2-Butoxyethanol	3	2	0	H226, H303, H313, H315, H319, H332
Naphtha (petroleum), hydrodesulfurized heavy	NO DATA	NO DATA	NO DATA	H226, H303, H304, H313, H315, H319, H340, H350, H372
Carbon black	1	1	0	H303, H313

3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS-NO	Content(%)
4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	22~32
Xylene	Xylene	1330-20-7	21~31
Limestone	Limestone	1317-65-3	17~27
Titanium dioxide	Titanium dioxide	13463-67-7	13~23
Dimethyl carbonate	Dimethyl carbonate	616-38-6	1~11
Petroleum resins	Petroleum resins	64742-16-1	1~10
Dodecylphenol, branched	Dodecylphenol, branched	121158-58-5	1~10
Propylene glycol methyl ether acetate	Propylene glycol methyl ether acetate	108-65-6	1~10
Ethylbenzene	Ethylbenzene	100-41-4	1~10
n-Butyl alcohol	n-Butyl alcohol	71-36-3	1~10
Solvent naphtha (petroleum), light arom.	Solvent naphtha (petroleum), light arom.	64742-95-6	0.1~4
2-Butoxyethanol	2-Butoxyethanol	111-76-2	0.1~4
Naphtha (petroleum), hydrodesulfurized heavy	Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	0.1~4
Carbon black	Carbon black	1333-86-4	0.1~4

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 inhalated 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 symtoms.
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.

5. Fire-fighting measures

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 halogenting 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.

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 : 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.

7. Handling and storage

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 ℃
Avoid strong oxidizing agents, acid.
Stored in an isolated place, freezing caution, high temperature body caution.
Storage temperature: 5 ~ 15 ℃
Storage temperature: 15 ~ 25 ℃
Storage temperature: 25 ~ 35 ℃
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.

8. Exposure controls/personal protection

A. Exposure Limits
○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
- 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)

○ Limestone
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Titanium dioxide
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Dimethyl carbonate
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Petroleum resins
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Dodecylphenol, branched
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Propylene glycol methyl ether acetate
- 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)

○ n-Butyl alcohol
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Solvent naphtha (petroleum), light arom.
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ 2-Butoxyethanol
- ACGIH : TWA, 20 ppm (97 mg/m3)
- Biological exposure indices : 尿中 Butoxyacetic acid (BAA)(with hydrolysis) : 200 mg/g creatinine(工作后)

○ Naphtha (petroleum), hydrodesulfurized heavy
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Carbon black
- 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 : 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 safty 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

9. Physical and chemical properties

A. Appearance : 유색 액체

B. Odor : 특취

C. Odor threshold : 자료없음

D. PH : 자료없음

E. Melting point/Freezing point(℃) : 자료없음

F. Initial Boiling Point/Boiling Ranges(℃) : 자료없음

G. Flash point(℃) : 20

H. Evaporating Rate : 자료없음

I. Flammability(solid, gas)(℃) : 자료없음

J. Upper/Lower Flammability or explosive limits : 자료없음

K. Vapour pressure : 자료없음

L. Solubility : (물)불용성

M. Vapour density : 자료없음

N. Specific gravity : 1.2±0.3

O. Partition coefficient of n-octanol/water : 자료없음

P. Autoignition temperature(℃) : 자료없음

Q. Decomposition temperature(℃) : 자료없음

R. Viscosity : 65~75(KU/25℃)

S. Molecular weight : 자료없음

10. Stability and reactivity

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 combustable materials

D. Hazardous decomposition products : Thermal decomposition products (carbon etc.,)

11.Toxicological information

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

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]

- Acute toxicity
  Oral : LD50 > 2000 mg/kg Rat
  Dermal : LD50 > 2000 mg/kg Rabbit
  Inhalation : LD50 > 2000 mg/kg Rabbit
- 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

○ 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.

○ Limestone

- 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

○ Titanium dioxide

- Acute toxicity
  Oral : LD50 > 10000 mg/kg Rat
  Dermal : LD50 > 10000 mg/kg Rabbit
  Inhalation : LD50 > 10000 mg/kg Rabbit
- Skin corrosion/irritation : (in rabbit) skin Irritation test result weak Irritation or non-irritating
- Serious eye damage/irritation : Using the rabbit eye irritation test results - Mild irritant
- Respiratory sensitization : NO DATA
- Skin sensitization : negative patch test results in people
- Carcinogenicity
  IARC : Group 2B
  OSHA : NO DATA
  ACGIH : A4
  NTP : NO DATA
  EU CLP : NO DATA
- Germ cell mutagenicity : Mouse Micronucleustest Negative, Mouse Chromosomal abnormalitiestest Negative
- Reproductive toxicity : Mouse Micronucleustest Negative, Mouse Chromosomal abnormalitiestest Negative

- STOT-single exposure : NO DATA
- STOT-repeated exposure : Reported occupational pneumoconiosis in the exposed workers for more than 20 years.
- Aspiration hazard : NO DATA

○ Dimethyl carbonate
- Acute toxicity
  Oral : LD50 = 13000 mg/kg Rat
  Dermal : LD50 = 5000 mg/kg Rabbit
  Inhalation : LD50 = 5000 mg/kg Rabbit
- Skin corrosion/irritation : non-irritating(rabbit)
- Serious eye damage/irritation : Mild irritant(rabbit)
- 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

○ Petroleum resins
- Acute toxicity
  Oral : LD50 = 7000 mg/kg (Mammals)
  Dermal : NO DATA
  Inhalation : NO DATA
- Skin corrosion/irritation : Causes of skin stimulus
- 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

○ Dodecylphenol, branched
- 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 acetate
- Acute toxicity
  Oral : LD50 = 8532 mg/kg Rat
  Dermal : LD50 > 5000 mg/kg Rabbit
  Inhalation : LD50 > 5000 mg/kg Rabbit
- Skin corrosion/irritation : rabbit: non-Irritation
- Serious eye damage/irritation : Rabbit: mild irritant
- Respiratory sensitization : NO DATA
- Skin sensitization : Guinea pig / maximization test (GLP): No sensitization
- Carcinogenicity
  IARC : NO DATA
  OSHA : NO DATA
  ACGIH : NO DATA
  NTP : NO DATA
  EU CLP : NO DATA
- Germ cell mutagenicity : In vitro - Salmonella typhimurium/TA98, TA100, TA1535, TA1537 (ames test, GLP): With and without metabolic activation system- Negative, CHL Cells/Chromosomal abnormalitiestest (GLP):With and without metabolic activation system- Negative, rat Hepatocyte/UDStest (GLP
- Reproductive toxicity : In vitro - Salmonella typhimurium/TA98, TA100, TA1535, TA1537 (Return mutation test,

GLP): Negative (negative), CHL Cells / Chromosome aberration test (GLP): Negative (negative), rat hepatocyte / UDS test (GLP) : Negative in the absence of metabolic activation system
- STOT-single exposure : Reported liver effects in humans. Rat Causes affect the spleen. In mice causes an effect on the central nervous system, and lung. That the anesthetic effect on the animal. Irritating to the prayers of people. (ACGIH, etc.)
- STOT-repeated exposure : Reported affect the kidneys, liver, central nervous system in humans. (PATTY 5th)
- Aspiration hazard : NO DATA

○ 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 mm2 / s (25 ℃)

○ 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

○ 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

○ 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

○ Naphtha (petroleum), hydrodesulfurized heavy
- Acute toxicity
  Oral : LD50 = 5000 mg/kg Rat
  Dermal : LD50 = 3160 mg/kg rabbit
  Inhalation : LD50 = 3160 mg/kg rabbit
- Skin corrosion/irritation : usuallystimulus(rabbit)
- Serious eye damage/irritation : Non-irritating(rabbit)
- Respiratory sensitization : NO DATA
- Skin sensitization : NO DATA
- 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 : NO DATA
- STOT-repeated exposure : NO DATA
- Aspiration hazard : NO DATA

○ Carbon black
- Acute toxicity
  Oral : LD50 = 15400 mg/kg Rat
  Dermal : LD50 = 3000 mg/kg rabbit
  Inhalation : LD50 = 3000 mg/kg rabbit
- Skin corrosion/irritation : NO DATA
- Serious eye damage/irritation : NO DATA
- 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 : NO DATA
- Reproductive toxicity : NO DATA
- STOT-single exposure : NO DATA
- STOT-repeated exposure : NO DATA
- Aspiration hazard : NO DATA

12. Ecological information

A. Ecotoxicity

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Xylene
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Limestone
- Fish : NO DATA

- Crustaceans : NO DATA
- Algae : NO DATA

○ Titanium dioxide
- Fish : NO DATA
- Crustaceans : EC50 > 1000 ㎎/ℓ 48 hr
- Algae : NO DATA

○ Dimethyl carbonate
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Petroleum resins
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Dodecylphenol, branched
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Propylene glycol methyl ether acetate
- Fish : LC50 ≥ 100 ㎎/ℓ 96 hr Oryzias latipes
- Crustaceans : EC50 = 373 ㎎/ℓ 48 hr Daphnia magna
- Algae : EC50 ≥ 1000 ㎎/ℓ 72 hr Selenastrum capricornutum

○ Ethylbenzene
- Fish : LC50 = 9.09 ㎎/ℓ 96 hr
- Crustaceans : LC50 = 0.4 ㎎/ℓ 96 hr
- Algae : NO DATA

○ n-Butyl alcohol
- Fish : LC50 > 100 ㎎/ℓ 96 hr
- Crustaceans : EC50 = 1983 ㎎/ℓ 48 hr
- Algae : EC50 = 28 ㎎/ℓ 48 hr

○ Solvent naphtha (petroleum), light arom.
- Fish : LC50 = 9.22 ㎎/ℓ 96 hr Oncorhynchus mykiss
- Crustaceans : EC50 = 6.14 ㎎/ℓ 48 hr Daphnia magna
- Algae : EC50 = 19 ㎎/ℓ 72 hr Selenastrum capricornutum

○ 2-Butoxyethanol
- Fish : LC50 1474 ㎎/ℓ 96 hr Oncorhynchus mykiss(OECD Guideline 203)
- Crustaceans : EC50 1800 ㎎/ℓ 48 hr Daphnia magna(OECD TG 202)
- Algae : EC50 911 ㎎/ℓ 72 hr Selenastrum capricornutum(OECD TG 201)

○ Naphtha (petroleum), hydrodesulfurized heavy
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

○ Carbon black
- Fish : NO DATA
- Crustaceans : EC50 = 5600 ㎎/ℓ 24 hr
- Algae : NO DATA

B. Persistence and degradability

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
- Persistence : NO DATA
- Degradability : NO DATA

○ Xylene
- Persistence : NO DATA
- Degradability : NO DATA

○ Limestone
- Persistence : NO DATA
- Degradability : NO DATA

○ Titanium dioxide
- Persistence : NO DATA
- Degradability : NO DATA

○ Dimethyl carbonate
- Persistence : NO DATA
- Degradability : NO DATA

○ Petroleum resins
- Persistence : NO DATA
- Degradability : NO DATA

○ Dodecylphenol, branched
- Persistence : NO DATA
- Degradability : NO DATA

○ Propylene glycol methyl ether acetate
- Persistence : log Kow = 0.43
- Degradability : NO DATA

○ Ethylbenzene
- Persistence : NO DATA
- Degradability : NO DATA

○ n-Butyl alcohol
- Persistence : NO DATA
- Degradability : NO DATA

○ Solvent naphtha (petroleum), light arom.
- Persistence : log Kow = 2.1 ~ 6 (Estimates)
- Degradability : BOD5/COD = 0.43

○ 2-Butoxyethanol

- Persistence : 0.81 log Kow (25 ° C, pH=7, BASF standard method)
- Degradability : NO DATA

○ Naphtha (petroleum), hydrodesulfurized heavy
- Persistence : NO DATA
- Degradability : NO DATA

○ Carbon black
- Persistence : NO DATA
- Degradability : NO DATA

C. Bioaccumulative potential

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Xylene
- Bioaccumulative potential : NO DATA
- Biodegration : 39 (%)

○ Limestone
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Titanium dioxide
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Dimethyl carbonate
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Petroleum resins
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Dodecylphenol, branched
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Propylene glycol methyl ether acetate
- Bioaccumulative potential : NO DATA
- Biodegration : Biodegradability > 60 (%) 28 day

○ Ethylbenzene
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ n-Butyl alcohol
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Solvent naphtha (petroleum), light arom.
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ 2-Butoxyethanol
- Bioaccumulative potential : NO DATA
- Biodegration : 90.4 % 28 day (OECD TG 301G)

○ Naphtha (petroleum), hydrodesulfurized heavy
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

○ Carbon black
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

D. Mobility in soil

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
▷ NO DATA

○ Xylene
▷ log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)

○ Limestone
▷ NO DATA

○ Titanium dioxide
▷ NO DATA

○ Dimethyl carbonate
▷ NO DATA

○ Petroleum resins
▷ NO DATA

○ Dodecylphenol, branched
▷ NO DATA

○ Propylene glycol methyl ether acetate
▷ NO DATA

○ Ethylbenzene
▷ log Kow = 3.15 (11)

○ n-Butyl alcohol
▷ NO DATA

○ Solvent naphtha (petroleum), light arom.
▷ NO DATA

○ 2-Butoxyethanol
▷ NO DATA

○ Naphtha (petroleum), hydrodesulfurized heavy

▷ NO DATA
○ Carbon black
▷ NO DATA

E. Other adverse effects
○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
▷ NO DATA
○ Xylene
▷ NO DATA
○ Limestone
▷ NO DATA
○ Titanium dioxide
▷ NO DATA
○ Dimethyl carbonate
▷ NO DATA
○ Petroleum resins
▷ NO DATA
○ Dodecylphenol, branched
▷ NO DATA
○ Propylene glycol methyl ether acetate
▷ NO DATA
○ Ethylbenzene
▷ NO DATA
○ n-Butyl alcohol
▷ NO DATA
○ Solvent naphtha (petroleum), light arom.
▷ NO DATA
○ 2-Butoxyethanol
▷ Flsh Danio rerio: NOEC14d>100 mg/L OECD TG 204, Crustacean Daphnia magna: NOEC21d=100 mg/L OECD TG 211 (ECHA)
○ Naphtha (petroleum), hydrodesulfurized heavy
▷ NO DATA
○ Carbon black
▷ NO DATA

13. Disposal considerations

A. Disposal methods : Disposal material should keep in the airtighted container, and consign according to Waste Mateial Management Act
Pre-treat with oil-water separation method when it is available.
Recycle the recycleable 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

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 : 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

15. Regulatory information

○ 4,4'-(1-Methylethylidene)bisphenol polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
- 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

○ Limestone
- 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

○ Titanium dioxide
- 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

○ Dimethyl carbonate
- 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

○ Petroleum resins
- 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

○ Dodecylphenol, branched
- 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 acetate

- 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

○ 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

○ 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

○ 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

○ Naphtha (petroleum), hydrodesulfurized heavy
- 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

○ Carbon black
- 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

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 : 2020-02-11

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

D. Other : " WWW.NOROO.CO.KR"