
1. Identification

- A. Product name : HiQ E-FLEET EF-7500(E) White
- B. Recommended Use and Restriction on Use
- ☐ General use : automotive refinsh
 - ☐ 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
- Chronic aquatic toxicity Category 3
- Specific target organ toxicity(Single exposure) Category 3
- Specific target organ toxicity(Repeated exposure) Category 2
- Aspiration hazard Category 1
- Ozone Layer Hazards

- 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
 - H412 Harmful to aquatic life with long lasting effects
 - H335+H336 May cause respiratory irritation, May cause drowsiness and dizziness.
 - 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)
 - H304 May be fatal if swallowed and enters airways
 - H420 It destroys the upper layer of the ozone layer and is harmful to public health and environment.
- ☐ Precautionary statements
 - Prevention
 - P210 Keep away from heat/sparks/open flames/hot surfaces. ? No smoking.
 - P223 Avoid contact with water.
 - P240 Ground/bond container and receiving equipment.
 - P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 - 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.
 - P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 - 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.
 - P314 Get medical advice/attention if you feel unwell.
 - 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 Store in a locked place.
 - P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 - Disposal
 - P501 Dispose of contents/container in accordance with local/regional/national/international

regulation

P502 Please refer to the information provided by the manufacturer / supplier on recycling and recycling examples.

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

Chemical Name	NFPA grade	Health	Flammability	Reactivity
Rutile(TiO2)		1	0	0
n-Butyl acetate		2	3	0
S1(Trade secrets)		NO DATA	NO DATA	NO DATA
S2(Trade secrets)		NO DATA	NO DATA	NO DATA
Xylene		NO DATA	NO DATA	NO DATA
Solvent naphtha (petroleum), light arom.		1	2	0
Ethylbenzene		2	3	0
Pentanedioic acid, dimethyl ester		1	1	0

3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS-NO	Content(%)
Rutile(TiO2)	Rutile(TiO2)	1317-80-2	22~32
n-Butyl acetate	n-Butyl acetate	123-86-4	19~29
S1(Trade secrets)	-	-	17~27
S2(Trade secrets)	-	-	18~28
Xylene	Xylene	1330-20-7	3~13
Solvent naphtha (petroleum), light arom.	Solvent naphtha (petroleum), light arom.	64742-95-6	1~10
Ethylbenzene	Ethylbenzene	100-41-4	1~10
Pentanedioic acid, dimethyl ester	Pentanedioic acid, dimethyl ester	1119-40-0	1~10

4. First-aid measures

A. Eye Contact : If you wear a contact lenses, remove them first. Do not rub your eyes. 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 : Wear gloves while washing the patient and avoid contact with exposed clothes. Wash carefully after handling. If symptoms like redness or irritation occurs, take medical assistant immediately. 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 : Flush mouth with water immediately. 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 symptoms. 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 : Avoid extinguishing fire with halogenting agent. Avoid use waterjet as fire extinguishing agent. 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 : Irritating and highly toxic gases may produced during the combustion by pyrolysis or combustion itself. Carbon dioxide, toxic carbon compounds/Nitrogen compounds/sulfur compounds

○ Fire and Explosion danger : Vapors may explode indoors, outdoors, and in drains Leakages may fire / explosion hazard and could be easily ignited by heat, sparks or flames. Container may explode when heating May form explosive mixture at or above ignition point Vapor may be released to the ignition source and ignited. Aqueous (Exclude water-soluble one) products does not have risk of fire or explosion hazard by itself. 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 : Do not approach if the tank is on fire. Avoid inhalation of the substance or combustion products. Use an unmanned fire extinguishing device, in case of large-sized fire. If not, leave it to burn. Tell the fire department, location of the fire and the hazardous features. Protect others from access and prohibit access to dangerous areas. 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 water 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.

7. Handling and storage

- A. Precautions for safe handling : 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. Do not take contaminated clothings away from the work area. Avoid contact with heat, sparks, flames or other sources of ignition. Do not inhale vapor for long-term or repeatedly. Do not handle until read and understood all safety precautions. Avoid contact with prohibited materials in mixture. Wash carefully after 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 : Store away from waterworks and sewers. Collect in an airtight container to dispose. Prevent static electricity and do not store near heat sources. Store in original container only. Store in accordance with all current law and regulations. Check periodically for leaks Store in a cool, dry, well-ventilated area. Storage temperature: 25 ~ 35 °C Storage temperature: 15 ~ 25 °C Storage temperature: 5 ~ 15 °C 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.

8. Exposure controls/personal protection

- A. Exposure Limits
- Rutile(TiO₂)
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - n-Butyl acetate
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - S1 (Trade secrets)
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - S2 (Trade secrets)
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - Xylene
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - Solvent naphtha (petroleum), light arom.
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - Ethylbenzene
 - ACGIH : NO DATA
 - Biological exposure indices : NO DATA
 - Pentanedioic acid, dimethyl ester
 - 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 : If there is possibility of direct contact or exposure to these substances should wear a authorized dust-proof mask or respirator for organic compounds Respiratory protection is ranked in order from minimum to maximum Respiratory protection may be needed, while frequent use or heavy exposure. Consider warning properties before use. 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 : If there is possibility of direct contact or exposure to these substances should wear authorized safty glasses or mask. 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 : If there is possibility of direct contact or exposure to these substances should wear authorized safety gloves for chemicals. Wear appropriate protective gloves 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 : If there is a possibility of direct contact or exposure to the substance Wear protective clothing for chemical substances Wear cleanroom garment or appropriate protective clothing to prevent contamination 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.

9. Physical and chemical properties

- A. Appearance : white liquid
- B. Odor : solvent odor
- C. Odor threshold : NO DATA
- D. PH : NO DATA
- E. Melting point/Freezing point(℃) : NO DATA
- F. Initial Boiling Point/Boiling Ranges(℃) : 112~172.8
- G. Flash point(℃) : 29.3
- H. Evaporating Rate : NO DATA
- I. Flammability(solid, gas)(℃) : NON Flammable
- J. Upper/Lower Flammability or explosive limits : NO DATA
- K. Vapour pressure : NO DATA
- L. Solubility : NO DATA
- M. Vapour density : higher than air
- N. Specific gravity : 1.1~1.4
- O. Partition coefficient of n-octanol/water : NO DATA
- P. Autoignition temperature(℃) : 407
- Q. Decomposition temperature(℃) : NO DATA
- R. Viscosity : NO DATA
- S. Molecular weight : NO DATA

10. Stability and reactivity

- 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 combustible 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
 - 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
- n-Butyl acetate
 - Acute toxicity
 - Oral : LD50 = 14130 mg/kg Rat
 - Dermal : LD50 = 17600 mg/kg Rabbit
 - Inhalation : LD50 = 17600 mg/kg Rabbit
 - Skin corrosion/irritation : Causes a weak stimulus person.
 - Serious eye damage/irritation : Non-irritating to rabbit eye irritation
 - Respiratory sensitization : NO DATA
 - Skin sensitization : Not a skin sensitizer
 - 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 : Central nervous system disorders who, pulmonary edema, respiratory irritation.
 - STOT-repeated exposure : NO DATA
 - Aspiration hazard : NO DATA
- S1 (Trade secrets)
 - 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
- S2 (Trade secrets)
 - 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
- 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 mm² / s (25 °C)
- Pentanedioic acid, dimethyl ester
 - Acute toxicity
 - Oral : LD50 = 1920 mg/kg Rat
 - Dermal : LD50 = 8500 mg/kg Rat
 - Inhalation : LD50 = 8500 mg/kg Rat
 - Skin corrosion/irritation : rabbit middle irritant
 - 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 : in vitro / ambiguous
 - Reproductive toxicity : in vitro / ambiguous
 - STOT-single exposure : NO DATA
 - STOT-repeated exposure : NO DATA
 - Aspiration hazard : NO DATA

12. Ecological information

A. Ecotoxicity

- 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
- n-Butyl acetate
 - Fish : LC50 = 62 mg/ℓ 96 hr
 - Crustaceans : LC50 = 32 mg/ℓ 48 hr
 - Algae : NO DATA
- S1 (Trade secrets)
 - Fish : NO DATA
 - Crustaceans : NO DATA

- Algae : NO DATA
 - S2 (Trade secrets)
 - Fish : NO DATA
 - Crustaceans : NO DATA
 - Algae : NO DATA
 - 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
 - Pentanedioic acid, dimethyl ester
 - Fish : LC50 = 13400 mg/ℓ 96 hr *Oncorhynchus mykiss*
 - Crustaceans : EC50 = 3940 ~ 4670 mg/ℓ 48 hr *Daphnia magna*
 - Algae : NO DATA
- B. Persistence and degradability
- Rutile(TiO2)
 - Persistence : NO DATA
 - Degradability : NO DATA
 - n-Butyl acetate
 - Persistence : log Kow = 1.78
 - Degradability : NO DATA
 - S1 (Trade secrets)
 - Persistence : NO DATA
 - Degradability : NO DATA
 - S2 (Trade secrets)
 - 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
 - Pentanedioic acid, dimethyl ester
 - Persistence : log Kow = 0.62
 - Degradability : NO DATA
- C. Bioaccumulative potential
- Rutile(TiO2)
 - Bioaccumulative potential : BCF = 10.38
 - Biodegradation : NO DATA
 - n-Butyl acetate
 - Bioaccumulative potential : NO DATA
 - Biodegradation : Biodegradability = 98 (%)
 - S1 (Trade secrets)
 - Bioaccumulative potential : NO DATA
 - Biodegradation : NO DATA
 - S2 (Trade secrets)
 - 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
 - Pentanedioic acid, dimethyl ester
 - Bioaccumulative potential : NO DATA
 - Biodegradation : Biodegradability = 98 (%) 28 day
- D. Mobility in soil
- Rutile(TiO2)
 - ▷ NO DATA
 - n-Butyl acetate
 - ▷ NO DATA
 - S1 (Trade secrets)
 - ▷ NO DATA
 - S2 (Trade secrets)
 - ▷ 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)
 - ☐ Pentanedioic acid, dimethyl ester
 - ▷ NO DATA
- E. Other adverse effects
- ☐ Rutile(TiO2)
 - ▷ NO DATA
 - ☐ n-Butyl acetate
 - ▷ NO DATA
 - ☐ S1 (Trade secrets)
 - ▷ NO DATA
 - ☐ S2 (Trade secrets)
 - ▷ NO DATA
 - ☐ Xylene
 - ▷ NO DATA
 - ☐ Solvent naphtha (petroleum), light arom.
 - ▷ NO DATA
 - ☐ Ethylbenzene
 - ▷ NO DATA
 - ☐ Pentanedioic acid, dimethyl ester
 - ▷ NO DATA

13. Disposal considerations

- A. Disposal methods : To prevent environmental pollution, dispose it to a licensed waste disposal company. Recycle the recyclable materials, such as organic solvents, and then incinerate the residue at high temperature. Pre-treat with oil-water separation method when it is available. Disposal material should keep in the airtight container, and consign according to Waste Material 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

- ☐ 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
- ☐ n-Butyl 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) : 2267.995 kg 5000 lb
 - ▷ 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

- S1 (Trade secrets)
 - 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
- S2 (Trade secrets)
 - 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
- 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
- Pentanedioic acid, dimethyl ester
 - 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

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 : 2018-08-20

C. Revision number and Last date revised : 7.(2020-11-09)

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