MSDS_Number : No Data

1. Identification

A. Product name : HiQ E-Fleet EF-8100 Black(NR56200K)
○ Usage category : No Data

B. Recommended Use and Restriction on Use
○ General use : automotive refinish
○ 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 2
Serious eye damage/irritation Category 2A
Specific target organ toxicity(Single exposure) Category 3
Specific target organ toxicity(Repeated exposure) Category 1
Skin corrosion/irritation 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
H351 Suspected of causing cancer
H319 Causes serious eye irritation
H335+H336 May cause respiratory irritation, May cause drowsiness and dizziness.
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
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, 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.
P403+P233 Store in a well-ventilated place. Keep container tightly closed

- Disposal

P501 Dispose of the contents and containers in accordance with waste-related laws.
P502 Please refer to the information on (recycling/recycling) provided by (manufacturer/supplier).

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

NFPA grade Chemical Name	Health	Flammability	Reactivity	GHS Classification
n-Butyl acetate	2	3	0	H335+H336
2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate	NO DATA	NO DATA	NO DATA	NO DATA
2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2- propanediol mono-2-propenoate	NO DATA	NO DATA	NO DATA	NO DATA
Xylene	NO DATA	NO DATA	NO DATA	H304, H315, H319, H332, H335+H336, H372
Carbon black	1	1	0	NO DATA
Ethylbenzene	2	3	0	H304, H315, H319, H332, H335+H336
Propylene glycol methyl ether acetate	1	2	0	H332, H335+H336
Trade secret	NO DATA	NO DATA	NO DATA	NO DATA

3. Composition/information on ingredients

Chemical Name	Trade names and Synonyms	CAS-NO	Content(%)
n-Butyl acetate	n-Butyl acetate	123-86-4	28~38
2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate	2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate	89642-96-6	29~39
2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2- propanediol mono-2-propenoate	2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2- propanediol mono-2-propenoate	67939-50-8	17~27
Xylene	Xylene	1330-20-7	10~20
Carbon black	Carbon black	1333-86-4	1~10
Ethylbenzene	Ethylbenzene	100-41-4	1~10
Propylene glycol methyl ether acetate	Propylene glycol methyl ether acetate	108-65-6	1~10
Trade secret	-	-	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 inhalated 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 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 : 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 ℃ Storage temperature: 15 ~ 25 ℃ Storage temperature: 5 ~ 15 ℃ Stored in an isolated place, freezing caution, high temperature body caution. Avoid strong oxidizing agents, acid. Storage temperature: 5 ~ 35 ℃ 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
○ n-Butyl acetate
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

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

○ Carbon black
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

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

○ Propylene glycol methyl ether acetate
- ACGIH : NO DATA
- Biological exposure indices : NO DATA

○ Trade secret
- 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(℃) : 112~150

G. Flash point(℃) : 28.3

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(℃) : 354

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 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
○ 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
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- 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
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- 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.

○ 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

○ 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 ℃)

○ 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

○ 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

12. Ecological information

A. Ecotoxicity
○ n-Butyl acetate
- Fish : LC50 = 62 ㎎/ℓ 96 hr
- Crustaceans : LC50 = 32 ㎎/ℓ 48 hr
- Algae : NO DATA
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA
○ Xylene
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA
○ Carbon black
- Fish : NO DATA
- Crustaceans : EC50 = 5600 ㎎/ℓ 24 hr
- Algae : NO DATA
○ Ethylbenzene
- Fish : LC50 = 9.09 ㎎/ℓ 96 hr
- Crustaceans : LC50 = 0.4 ㎎/ℓ 96 hr
- 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
○ Trade secret
- Fish : NO DATA
- Crustaceans : NO DATA
- Algae : NO DATA

B. Persistence and degradability
○ n-Butyl acetate
- Persistence : log Kow = 1.78
- Degradability : NO DATA
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- Persistence : NO DATA
- Degradability : NO DATA
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- Persistence : NO DATA
- Degradability : NO DATA
○ Xylene
- Persistence : NO DATA
- Degradability : NO DATA
○ Carbon black
- Persistence : NO DATA
- Degradability : NO DATA
○ Ethylbenzene
- Persistence : NO DATA
- Degradability : NO DATA
○ Propylene glycol methyl ether acetate
- Persistence : log Kow = 0.43
- Degradability : NO DATA
○ Trade secret
- Persistence : NO DATA
- Degradability : NO DATA

C. Bioaccumulative potential
○ n-Butyl acetate
- Bioaccumulative potential : NO DATA
- Biodegration : Biodegradability = 98 (%)
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA
○ Xylene
- Bioaccumulative potential : NO DATA
- Biodegration : 39 (%)
○ Carbon black
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA
○ Ethylbenzene
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA
○ Propylene glycol methyl ether acetate
- Bioaccumulative potential : NO DATA
- Biodegration : Biodegradability > 60 (%) 28 day
○ Trade secret
- Bioaccumulative potential : NO DATA
- Biodegration : NO DATA

D. Mobility in soil
○ n-Butyl acetate
▷ NO DATA
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
▷ NO DATA
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
▷ NO DATA
○ Xylene
▷ log Kow = 3.12 (measured) (ortho), 3.2 (measured) (meta), 3.15 (measurements) (p) (5)
○ Carbon black
▷ NO DATA
○ Ethylbenzene
▷ log Kow = 3.15 (11)
○ Propylene glycol methyl ether acetate
▷ NO DATA
○ Trade secret
▷ NO DATA

E. Other adverse effects
○ n-Butyl acetate
▷ NO DATA
○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
▷ NO DATA
○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
▷ NO DATA
○ Xylene
▷ NO DATA
○ Carbon black
▷ NO DATA
○ Ethylbenzene
▷ NO DATA
○ Propylene glycol methyl ether acetate
▷ NO DATA
○ Trade secret
▷ NO DATA

13. Disposal considerations

A. Disposal methods : To prevent environmental pollution, dispose it to a licensed waste disposal company. Recycle the recycleable 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 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

○ 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

○ 2-Propenoic acid, 2-methyl-,butyl ester, polymer with butyl 2-propenoate,ethenylbenzene,2-hydroxyethyl 2-propenoate
- 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

○ 2-Methyl-2-propenoic acid polymer with butyl 2-propenoate, ethenylbenzene, methyl 2-methyl-2-propenoate and 1,2-propanediol mono-2-propenoate
- 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

○ 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

○ 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

○ 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

○ 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

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 : 2019-03-22

C. Revision number and Last date revised : 3. 2021-01-13

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