NOROO

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

NRP-CFC380YH

Date of issue: 2026-04-16 Revision date: 2026-04-16 Version: 1.5

1. IDENTIFICATION

A. Product name

- NRP-CFC380YH

B. Recommended use and restriction on use

- General use : 기타
- Restriction on use : 권고 용도 이외 사용을 금함

C. Manufacturer / Supplier / Distributor information

- Company name : 노루페인트
- Address : 경기도 안양시 만안구 박달로 351
- Emergency telephone number : 031-467-6114

2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category3

B. GHS label elements

○ Hazard symbols



○ Signal words

- Not applicable

○ Hazard statements

- H226 Flammable liquid and vapour

○ Precautionary statements

1) Prevention

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

2) 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 SDS 5).

3) Storage

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

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Siloxanes and Silicones, di-Me, [(trimethoxysilyl)oxy]-terminated	Polydimethylsiloxane [(trimethoxysilyl)oxy]-terminated	142982-20-5	70~78
Siloxanes and Silicones, di-Me, vinyl group-terminated	Siloxanes and Silicones, di-Me, vinyl group-terminated ; Siloxanes and silicones, dimethyl, vinyl terminated ; SILOXANES AND SILICONES, DI-ME VINYL GROUP TERMINATED ; Siloxanes and silicones, di-Me,vinyl group-terminated ; Di-Me silicones, vinyl group-terminated ; Di-Me silicones, vinyl-terminated ; Di-Me siloxanes, vinyl group-terminated ; Di-Me siloxanes, vinyl-terminated ; Di-Me, (dimethylvinylsilyl)-terminated siloxanes and silicones ; dimethylsiloxanes, dimethylvinylsilyl-terminated ;	68083-19-2	3~10
Siloxanes and Silicones, di-Me	Dimethyl silicones and siloxanes ; Polydimethylsiloxane ; Dimethylpolysiloxane ; Silicone oil ;	63148-62-9	1~8
Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium	Diisopropoxy-bisethylacetoacetatotitanate	27858-32-8	1~5

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.

C. Inhalation contact

- Take specific treatment if needed.
- When exposed to large amounts of steam and mist, move to fresh air.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Avoid use of water jet for extinguishing
- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

B. Specific hazards arising from the chemical

- Flammable liquid and vapour

C. Special protective actions for firefighters

- Avoid inhalation of materials or combustion by-products.
- Cool containers with water until well after fire is out.
- Do not approach the tank surrounded by fire until it is extinguished.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep unauthorized personnel out.
- Move containers from fire area, if you can do without the risk.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Ventilate closed spaces before entering.
- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.

B. Environmental precautions

- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.
- If large amounts have been spilled, inform the relevant authorities.
- Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

- Appropriate container for disposal of spilled material collected.
- Dike for later disposal.
- Disposal of waste shall be in compliance with the Wastes Control Act
- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after

container is emptied.

- Wash thoroughly after handling.

B. Conditions for safe storage, including any incompatibilities

- Avoid direct sunlight.
- Check regularly for leaks.
- Do not apply any physical shock to container.
- Do not apply direct heat.
- Do not use damaged containers.
- Keep in the original container.
- Keep sealed when not in use.
- No open fire.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Save in cool, dry and well ventilated place.
- Store according to current laws and regulations

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ ACGIH TLV

- Not applicable

○ OSHA PEL

- Not applicable

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

○ Respiratory protection

- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Consider warning properties before use.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Respiratory protection is ranked in order from minimum to maximum.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

○ Eye protection

- Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

○ Hand protection

- Wear appropriate chemical resistant glove.

○ Skin protection

- Wear appropriate chemical resistant protective clothing.

○ Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	액체

- Color	연노란색
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	60
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	0.9758
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	350
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid: Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ Respiratory tracts

- Not available

○ Oral

- Not available

○ Eye·Skin

- Not available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ Acute toxicity

* Oral

- Product (ATEmix) : >5000mg/kg

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : LD50 = 16000 ㎎/㎏ Rat (NLM, RTECS)
- [Siloxanes and Silicones, di-Me] : LD50 > 17000 ㎎/㎏ Rat (NLM)
- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : LC50 23020 mg/kg Rat (OECD TG 401) (ECHA)

* Dermal
- Product (ATEmix) : >5000mg/kg
- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : LD50 = 16000 ㎎/㎏ Rabbit (NLM, RTECS)
- [Siloxanes and Silicones, di-Me] : LD50 > 2000 ㎎/㎏ Rabbit (NLM)
- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : LD50 12870 mg/kg Rabbit (Read-across 67-63-0) (ECHA)

* Inhalation
- Product (ATEmix) : >50.0mg/L, Vapour, 4hr
- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : Vapour LC50 > 10000 ppm (> 24.6 mg/L) 6 hr mg/kg Rat No death Not classified (Read-across 67-63-0) (ECHA)

○ Skin corrosion/irritation
- Not available

○ Serious eye damage/irritation
- Not available

○ Respiratory sensitization
- Not available

○ Skin sensitization
- Not available

○ Carcinogenicity
* IARC
- Not available
* OSHA
- Not available
* ACGIH
- Not available
* NTP
- Not available
* EU CLP
- Not available

○ Germ cell mutagenicity
- Not available

○ Reproductive toxicity
- Not available

○ STOT-single exposure
- Not available

○ STOT-repeated exposure
- Not available

○ Aspiration hazard
- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ Fish
- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : LC50 0.021 ㎎/ℓ 96h(estimate)
- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : LC50 9640 mg/L 96 hr Pimephales promelas

across 67-63-0) (ECHA)

○ Crustaceans

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : LC50 0.024 ㎎/ℓ 48 hr (estimate)

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : EC50 > 9.8 mg/L 48 hr Daphnia magna (OECD TG 202, GLP) (ECHA)

○ Algae

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : EC50 0.085 ㎎/ℓ 96 hr(estimate)

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : EC50 > 11 mg/L, NOEC 11 mg/L 72 hr Raphidocelis subcapitata (OECD TG 201, GLP) (ECHA)

B. Persistence and degradability

○ Persistence

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : log Kow 6.64 (Estimate)

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : log Pow 0.05 (25 ℃) (Read-across 67-63-0) (ECHA)

○ Degradability

- Not available

C. Bioaccumulative potential

○ Bioaccumulative potential

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : BCF 11200 (Estimate)

○ Biodegradation

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : Readily biodegradable, 72 % 20 d (O2 consumption) (Read-across 67-63-0) (EU Method C.5) (ECHA)

D. Mobility in soil

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : Koc = 578700 (Can be adsorbed in the soil)

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : Koc 1.53 (Read-across 67-63-0) (ECHA)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration

- Oil water separation technology shall be applied as pre-waste treatment if it is applicable

- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act

- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 1993

B. Proper shipping name

- FLAMMABLE LIQUID, N.O.S.

C. Hazard Class

- 3

D. IMDG CODE/IATA DGR Packing group

- III

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Air transport(IATA): Not subject to IATA regulations.

- Local transport follows in accordance with Dangerous goods Safety Management Law.

- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)

- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ POPs Management Law

- [Siloxanes and Silicones, di-Me, [(trimethoxysilyl)oxy]-terminated] : Not applicable

- [Siloxanes and Silicones, di-Me, vinyl group-terminated] : Not applicable

- [Siloxanes and Silicones, di-Me] : Not applicable

- [Bis(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)titanium] : Not applicable

○ Information of EU Classification

* Classification

- Not applicable

○ U.S. Federal regulations

* OSHA PROCESS SAFETY (29CFR1910.119)

- Not applicable

* CERCLA Section 103 (40CFR302.4)

- Not applicable

* EPCRA Section 302 (40CFR355.30)

- Not applicable

* EPCRA Section 304 (40CFR355.40)

- Not applicable

* EPCRA Section 313 (40CFR372.65)

- Not applicable

○ Rotterdam Convention listed ingredients

- Not applicable

○ Stockholm Convention listed ingredients

- Not applicable

○ Montreal Protocol listed ingredients

- Not applicable

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

- 2026-04-16

C. Revision number and Last date revised

- 5 times, 2026-04-16

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).