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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1) Product identifier: N-Par 16
- 2) Relevant identified uses of the substance or mixture and uses advised against:
- 3) Manufacture/Supplier/Distributor information:
 - Manufacture information:

Company name: ISU CHEMICAL CO., LTD
 Address: 8, Seokdang-gil, Onsan-eup, Ulju-gun, Ulsan, Korea
 Emergency telephone number: Tel. 052-231-5587 Fax. 052-231-5699


2. HAZARD IDENTIFICATION

- 1) Hazard classification: Aspiration hazard: Cat.1
- 2) Allocation label elements including precautionary statements
 - Hazard pictograms


 - Signal word: Danger
 - Hazard statements
 - H304: May be fatal if swallowed and enters airways.
 - Precautionary statements
 - Response
 - P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 - P331: Do not induce vomiting.
 - Storage
 - P405: Store locked up.
 - Disposal
 - P501: Dispose of contents/container to (in accordance with local/regional/national/International regulations.)
- 3) Other hazards:
 - EUH066: Repeated exposure may cause skin dryness or cracking.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration (wt%)
Hexadecane	(CETANE) GLYCERYL OLEATE	544-76-3	≥ 98

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4. FIRST AID MEASURES

- 1) Following eye contact:
 - Flush thoroughly with water.
 - If irritation occurs, get medical assistance.
- 2) Following skin contact:
 - Wash contact areas with soap and water.
 - Remove contaminated clothing.
 - Launder contaminated clothing before reuse
- 3) Following inhalation:
 - Remove from further exposure.
 - For those providing assistance, avoid exposure to yourself or others.
 - Use adequate respiratory protection.
 - If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance.
 - If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
- 4) Following ingestion:
 - Seek immediate medical attention.
 - Do not induce vomiting.
- 5) Advice to physician:
 - If ingested, material may be aspirated into the lungs and cause chemical pneumonitis.
 - Treat appropriately.

5. FIRE FIGHTING MEASURES

- 1) Suitable (and unsuitable) extinguishing media:
 - Suitable extinguishing media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.
 - unsuitable extinguishing media: Straight streams of water
- 2) Special hazards arising from the substance or mixture:
 - Oxides of carbon, Smoke, Fume, Incomplete combustion products
- 3) Special protective equipment for firefighters:
 - Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.
 - Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA).
 - Use water spray to cool fire exposed surfaces and to protect personnel.

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6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment
 - Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.
- 2) Environmental precautions:
 - Large Spills:
 - Dyke far ahead of liquid spill for later recovery and disposal.
 - Prevent entry into waterways, sewers, basements or confined areas.
- 3) For cleaning up
 - Land Spill:
 - Stop leak if you can do so without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
 - Recover by pumping or with suitable absorbent.
 - Water Spill:
 - Stop leak if you can do so without risk. Warn other shipping. Remove from the surface by skimming or with suitable absorbents.
 - Seek the advice of a specialist before using dispersants.

7. HANDLING AND STORAGE

- 1) Precautions for safe handling:
 - Avoid contact with skin.
 - Use proper bonding and/or earthing procedures.
 - Prevent small spills and leakage to avoid slip hazard.
 - Material can accumulate static charges which may cause an electrical spark (ignition source).
 - Loading/Unloading Temperature: [Ambient]
 - Transport Temperature: [Ambient]
 - Transport Pressure: [Ambient]
 - Static Accumulator: This material is a static accumulator.
- 2) Conditions for safe storage (including any incompatibilities):
 - Do not store in open or unlabelled containers.
 - Keep container closed. Handle containers with care.
 - Storage Temperature: [Ambient]
 - Storage Pressure: [Ambient]
 - Suitable Containers/Packing: Tank Trucks; Railcars; Barges; Drums

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- Suitable Materials and Coatings: Carbon steel; Stainless steel; Polyethylene; Polypropylene; Polyester; Teflon
- Store in a cool, well-ventilated area.
- Unsuitable Materials and Coatings: Natural rubber; Butyl rubber; Ethylene-propylene-diene monomer (EPDM); Polystyrene
- Open slowly in order to control possible pressure release.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Hexadecane	No data available	No data available	No data available

2) Appropriate engineering controls:

- Avoid subsoil penetration.
- Do not flush into surface water or sanitary sewer system..

3) Personal protection equipment:

○ Respiratory protection:

- Respiratory protection No personal respiratory protective equipment normally required.
- In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use, or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a type A filter or appropriate combined filter (e.g. where aerosols are in use, or smoke and mist occur, A-P2 or ABEK-P2), in compliance with EN 141.


○ Eye protection:

- Eye protection Tightly fitting safety goggles
- Protective measures Avoid contact with eyes.
- Wear suitable eye/face protection.

○ Hand protection:

- Hand protection The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.. Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

1) gloves suitable for permanent contact:

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- Material: Fluorinated rubber
- Break through time: ≥ 480 min
- Material thickness: 0.4 mm
- Material: Nitrile rubber/nitrile latex
- Break through time: ≥ 480 min
- Material thickness: 0.35 mm
- 2) unsuitable gloves:
 - Material: Natural rubber/natural latex, butyl-rubber, Polyvinylchloride
- Body protection: Wear protective clothing of appropriate materials considering the physical and chemical properties of the chemical.

9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) Appearance(Physical state, color, etc): Liquid, colourless
- 2) Odour: odourless
- 3) Odor threshold: No data available
- 4) pH: 7
- 5) Melting point/freezing point: 18°C at 1 atm
- 6) Initial boiling point and boiling range: 285°C at 1 atm
- 7) Flash point: 112°C at 1 atm
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): No data available
- 10) Upper/lower flammability or explosive limits: No data available
- 11) Vapour pressure: 5 Pa at 20°C.
- 12) Solubility(ies): 0.0009 mg / kgat 25°C
- 13) Vapour density: 0.003 mm Hg at 20°C
- 14) Relative density: 0.7759 g / cm³ at 15°C
- 13) n-octanol/water partition coefficient: 8.2 Log Pow at 25 °C
- 14) Auto ignition temperature: > 200 ° C
- 15) Decomposition temperature: No data available
- 16) Viscosity: 3.0 ~ 5.0 mm²/s at 25°C
- 17) Molecular weight(mass): 226

10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
 - Stable under recommended storage conditions.
 - Heating can release hazardous gases.
 - Vapours may form explosive mixture with air.

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- 2) Conditions to avoid: Direct heating, dirt, chemical contamination, sunlight, UV or ionising radiation.
- 3) Incompatible materials: Strong oxidizing agents
- 4) Hazardous decomposition products: No decomposition if stored normally.

11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information : No data available
- 2) Health hazard information
 - Acute toxicity:
 - Oral: LD50 > 5000 mg/kg bw in rat OECD Guideline 401 (Acute Oral toxicity Acute Toxic Class Method)
 - Dermal: LD50 > 3160 mg/kg bw in rabbit OECD Guideline 402 (Acute Dermal Toxicity)
 - Inhalation: LC50 > 5 266 mg/m³ air (analytical) in rat OECD Guideline 403(Acute Inhalation Toxicity)
 - Skin corrosion/Irritation: Not irritating
 - Serious eye damage/irritation: Not irritating
 - Respiratory sensitization: No data available
 - Skin sensitization: Not sensitising
 - Carcinogenicity: Not classified as carcinogenic by the Industrial Safety and Health Act, Ministry of Employment and Labor Notice, IARC, OSHA, ACGIH, NTP.
 - Germ cell mutagenicity: Structurally analogous test materials, hydrodesulfurized kerosene and jet fuel A were non-mutagenic when tested in in vivo studies: mouse bone marrow micronucleus assay, mammalian bone marrow chromosome aberration test and a dominant lethal assay.
 - Reproductive toxicity: Developmental toxicity/hypothesis test using rats confirmed that it is not a reproductive toxic substance.
 - Specific target organ toxicity (single exposure): Irritating the airway when inhaled
 - Specific target organ toxicity (repeated exposure): No data available
 - Aspiration hazard: about 3.0 ~ 5.0 cSt at 25℃
 - Other harmful effects: No data available

12. ECOLOGICAL INFORMATION

- 1) Aquatic toxicity:
 - Fish: LL50 > 1.028 – 87.556 g/L, *Scophthalmus maximus*, 96hr
 - Crustacean: LL50 = 1 – 3.193 g/L, other aquatic arthropod: *Acartia tonsa*, 48hr
 - Aquatic algae: EL50 = 993 – 1000 g/L, *Skeletonema costatum*, 72hr

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- 2) Persistence and degradation:
 - residual: 8.25 log Kow (Estimated value)
 - resolvability: No data available
- 3) Bioaccumulative potential:
 - condensability: BCF = 69 L/kg
 - biodegradability: No data available
- 4) Mobility in soil: 46.7 ~ 387.6
- 5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS


- 1) Disposal methods: Pre-treat oil and water separated by oil and water separation method.
- 2) Precautions (including disposal of contaminated container or package): Dispose of the contents container (as specified in the relevant laws).

14. TRANSPORT INFORMATION

- 1) UN No.: Not regulated
- 2) Proper shipping name: Not applicable
- 3) Class or division: Not applicable
- 4) Packing group: Not applicable
- 5) Marine pollutant: Not applicable
- 6) Special safety response for transportation or transportation measure: Not applicable

15. REGULATORY INFORMATION

- 1) Occupational Safety and Health Act in Korea: Not applicable
- 2) Chemicals Control Act in Korea: Not applicable
- 3) Safety Control of Dangerous Substances Act in Korea: Class 4 Third Petroleum liquids(2000ℓ)
- 4) Wastes Control Act in Korea: designated waste
- 5) Wastes Control Act in EU: Not applicable
- 6) Other regulations in KOREA and Abroad regulations:
 - Other regulation (Domestic):
 - Persistent Organic Pollutants (POPs) Control Act: Not applicable
 - National regulations:
 - U.S.A. management information(OSHA regulation): Not applicable
 - U.S.A. management information(CERCLA regulation): Not applicable
 - U.S.A. management information(EPCRA 302 regulation): Not applicable

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- U.S.A. management information(EPCRA 304 regulation): Not applicable
- U.S.A. management information(EPCRA 313 regulation): Not applicable
- U.S.A. management information(Rotterdam Convention on Substances): Not applicable
- U.S.A. management information(Stockholm Convention on Substances): Not applicable
- U.S.A. management information(Montreal Protocol on Substances): Not applicable
- EU Classification (Classification): Not applicable
- EU Classification (Risk Phrases): Not applicable
- EU Classification (Safety Phrases): Not applicable

16. OTHER INFORMATION

1) Reference:

- ECHA CHEM
- KOREA Safety and Health Agency 2018
- National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)

2) Date of initial completion: 2020. 11. 02

3) Number of revised/Date of last revision: 1 / 2021. 06. 21

4) Other: No data available