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


- 1) Product identifier: N-Par 146-1
- 2) Relevant identified uses of the substance or mixture and uses advised against:
 - Manufacturing ingredients such as lubricant and chemical fertilizer
- 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. +82 52 231 5587 Fax. +82 52 231 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
 - Prevention: No data available
 - 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.
- 3) Other hazards:
 - No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration(wt%)
Hydrocarbons, C14-C17, n-alkanes, <2%	-	185857-35-6	100

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aromatics			
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4. FIRST AID MEASURES


- 1) Following eye contact:
 - In case of contact with material, immediately flush eyes with running water for at least 20 minutes.
 - Get medical aid immediately.
- 2) Following skin contact:
 - Seek immediate medical assistance.
 - Remove and isolate contaminated clothing and shoes.
 - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
 - In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- 3) Following inhalation:
 - Administer oxygen if breathing is difficult.
 - Give artificial respiration if victim is not breathing.
 - Move victim to fresh air.
- 4) Following ingestion:
 - do not induce vomiting, consult a physician
- 5) Advice to physician:
 - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves

5. FIRE FIGHTING MEASURES

- 1) Suitable (and unsuitable) extinguishing media:
 - Water spray, Foam, Dry chemical, Carbon dioxide(CO2)
 - Unsuitable extinguishing media: Straight streams of water
- 2) Special hazards arising from the substance or mixture:
 - Containers may explode when heated.
 - Runoff may create fire or explosion hazard.
 - Vapor explosion hazard indoors, outdoors or in sewers.
 - Fire may produce irritating, corrosive and/or toxic gases.
- 3) Special protective equipment for firefighters:
 - In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment:

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- Eliminate all ignition sources.
 - Stop leak if you can do it without risk.
 - All equipment used when handling the product must be grounded.
 - A vapor suppressing foam may be used to reduce vapors.
 - Do not touch or walk through spilled material.
- 2) Environmental precautions:
- Prevent entry into waterways, sewers, basements or confined areas.
 - Runoff may cause pollution.
- 3) For cleaning up:
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
 - Large Spill: Dike far ahead of liquid spill for later disposal.
 - Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE


- 1) Precautions for safe handling:
- ensure all equipment is electrically grounded before beginning transfer operations
 - Handling refer to engineering control/personal protection section.
 - Caution: Heat
 - Measure atmospheric oxygen concentration and ventilate the area during the operation since low-oxygen area can cause oxygen deficiency.
- 2) Conditions for safe storage (including any incompatibilities):
- Please note that materials and conditions to be avoided.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- 1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Alkanes, (C=14-17)	No data available	No data available	No data available

- 2) Appropriate engineering controls:
- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- 3) Personal protection equipment:
- Respiratory protection:
 - Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.
 - Eye protection:

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- Wear suitable protective goggles and face shields.
- Provide emergency showers and eyewash.
- Hand protection:
 - Wear suitable protective gloves.
- Body protection:
 - Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) Appearance(Physical state, color, etc.): Colorless liquid
- 2) Odor: Slight Odor
- 3) Odor threshold: No data available
- 4) pH: No data available
- 5) Melting point/freezing point: 5-7 °C
- 6) Initial boiling point and boiling range: 245-265 °C
- 7) Flash point: 110-120 °C
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): Not applicable
- 10) Upper/lower flammability or explosive limits: No data available
- 11) Vapour pressure: 0.0034~0.0153 mmHg @ 25 °C (Estimated)
- 12) Solubility(ies): 0.0092 mg/L @ 25 °C (In Water, Estimated)
- 13) Vapour density: No data available
- 14) Relative density: 0.7-0.8 @ 20 °C
- 15) n-octanol/water partition coefficient: 7.22 @ 25 °C (Estimated)
- 16) Auto ignition temperature: 215 °C
- 17) Decomposition temperature: No data available
- 18) Viscosity: 1.7 - 2.7 cSt at 40 °C
- 19) Molecular weight(mass): 195-205

10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
 - Containers may explode when heated.
 - Runoff may create fire or explosion hazard.
 - Vapor explosion hazard indoors, outdoors or in sewers.
 - Fire may produce irritating, corrosive and/or toxic gases.
- 2) Conditions to avoid:
 - Ignition source(heat, spark, flame)
 - oxidizing agents
- 3) Incompatible materials:
 - Combustibles

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- Irritating, toxic gas
- 4) Hazardous decomposition products:
 - combustion products include carbon dioxide, carbon monoxide and possibly other unidentified organic compounds

11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
 - ☐ No data available
- 2) Health hazard information
 - ☐ Acute toxicity:
 - Oral: LD50 > 5000 mg/kg (Rat, OECD TG 401)
 - Dermal: No data available
 - Inhalation(Gas): Not applicable
 - Inhalation(Vapor): No data available
 - Inhalation(Dust, mist): No data available
 - ☐ Skin corrosion/Irritation:
 - Not irritating (Rabbit, OECD TG 404)
 - ☐ Serious eye damage/irritation:
 - Not irritating (Rabbit, OECD TG 405)
 - ☐ Respiratory sensitization:
 - No data available
 - ☐ Skin sensitization:
 - Not sensitising (Guinea pig)
 - ☐ Carcinogenicity:
 - No data available
 - ☐ Germ cell mutagenicity:
 - In vitro – Salmonella typhimurium: Negative (Ames test, Metabolic activation: with and without, OECD TG 471)
 - ☐ Reproductive toxicity:
 - No data available
 - ☐ Specific target organ toxicity (single exposure):
 - Piloerection was observed shortly after dosing in all animals. (Rat, OECD TG 401)
 - ☐ Specific target organ toxicity (repeated exposure):
 - No data available
 - ☐ Aspiration hazard: (Cat. 1)
 - Kinematic viscosity: about 1.7 – 2.7 cSt (centistokes)

12. ECOLOGICAL INFORMATION

- 1) Aquatic toxicity:

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- Crustacean: EC50> 10000 mg/L (Daphnia magna, 48h)
- 2) Persistence and degradation: log Kow= 7.22 (Calculated), BOD= 80% (28d)
- 3) Bioaccumulative potential: BCF= 2688 (Calculated)
- 4) Mobility in soil: Koc= 16000 (Calculated)
- 5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS


- 1) Disposal methods:
 - Dispose of contents/container to the waste control act.
- 2) Precautions (including disposal of contaminated container of package):
 - Regulations precautions indicated in Waste Management Act should be considered.

14. TRANSPORT INFORMATION

- 1) UN No.: No information on classification of hazardous materials transportation.
- 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
- 4) Wastes Control Act in Korea: Designated waste
- 5) 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
 - 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

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- 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:

- Korea Occupational Safety & Health Agency MSDS
- OECD SIDS
- HSDB
- IARC
- ECOTOX
- NITE
- Recommendations on the transport of dangerous goods
- NCIS
- Emergency response guide book
- Korea Dangerous Material Inventory Management System, NEMA
- ECOSAR
- QSAR
- EU RAR
- The Chemical Database
- ICSC
- RTECS
- NIOSH Pocket guide
- ESIS
- ECHA CHEM
- HPVIS
- IUCLID
- SIDS

2) Print date: 2019. 07. 23

3) Number of revised/Date of last revision: 0 /

4) Other: No data available