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

- 1) Product identifier: Liquid Paraffin-12
- 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. +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
    - 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%)
Dodecane	N-DODECANE	112-40-3	100

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#### 4. FIRST AID MEASURES

- 1) Following eye contact: After eye contact Rinse opened eye for several minutes under running water.
- 2) Following skin contact: After skin contact The product is not skin irritating.
- 3) Following inhalation: After inhalation Supply fresh air; consult doctor in case of symptoms.
- 4) Following ingestion: After swallowing Do not induce vomiting; instantly call for medical help.
- 5) Advice to physician: No data available

#### 5. FIRE FIGHTING MEASURES

- 1) Suitable (and unsuitable) extinguishing media:
  - Suitable extinguishing agents: CO<sub>2</sub>, extinguishing powder or water spray.


Fight larger fires with water spray or alcohol-resistant foam.
- 2) Special hazards arising from the substance or mixture: No data available
- 3) Special protective equipment for firefighters: No special measures required.

#### 6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment: Not required.
- 2) Environmental precautions: No special measures required.
- 3) For cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

#### 7. HANDLING AND STORAGE

- 1) Precautions for safe handling:
  - No special measures required.
  - Information about protection against explosions and fires: No special measures required.
- 2) Conditions for safe storage (including any incompatibilities):
  - Requirements to be met by storerooms and containers: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: None

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

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

2) Appropriate engineering controls:

- Install cleansing facilities and safety showers for storage or use of this substance.

3) Personal protection equipment:

○ Respiratory protection:

- Wear respiratory protective equipment certified by Korea Occupational Safety & Health Agency according to the physical and chemical properties of the gas / liquid exposed.
- For gas / liquid substances the following respiratory protection is recommended:  
Isolated full face gas mask (for organic compounds (if acid gas, acid gas)) or Isolation type half-gas mask (for organic compound (for acid gas, acid gas)) or Direct type full face gas mask (for organic compounds (for acid gas, for acid gas)) or The half-gas mask (for organic compounds (for acid gas, for acid gas)) or Electric Gas Mask
- In case of lack of oxygen (<19.5%), wear breathing mask or self-contained breathing apparatus.

○ Eye protection:

- Wear safety glasses or breathable eyeglasses to protect your eyes from steam-conditioned organic matter that causes eye irritation or other health problems.
- Install an emergency washing facility (shower type) and a cleansing facility in a location easily accessible to workers.

○ Hand protection:


- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

○ Body protection:

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) Appearance(Physical state, color, etc): Liquid, colourless
- 2) Odour: faint
- 3) Odor threshold: No data available
- 4) pH: No data available


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- 5) Melting point/freezing point: -10℃ at kPa
- 6) Initial boiling point and boiling range: 209 – 214℃
- 7) Flash point: 85℃
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): No data available
- 10) Upper/lower flammability or explosive limits: 4.7 / 0.6 %
- 11) Vapour pressure: 0.02 kPa at 25℃
- 12) Solubility(ies):0.005 mg/L at 25℃ (Estimated)
- 13) Vapour density: 5.9
- 14) Relative density: 0.75
- 15) n-octanol/water partition coefficient: 6.10
- 16) Auto ignition temperature: 200 ℃ at 1 atm
- 17) Decomposition temperature: No data available
- 18) Viscosity: 1.42 cSt at 40℃
- 19) Molecular weight(mass): 170.38

## 10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
  - flammable liquids and vapors
  - May cause fire and explosion due to intense polymerization
  - May form an explosive mixture at or above the Flash point
  - Container may explode when heated
  - Highly flammable: easily ignited by heat, spark, and flame
  - Leakage is at risk of fire/explosion. Risk of steam explosion in indoor, outdoor, and sewer.
  - Some can burn but not easily ignite
  - Vapor can form an explosive mixture of air and explosive.
  - Non-flammable, substances themselves do not burn, but may decompose when heated, resulting in corrosive/toxic fume
  - May cause irritating, corrosive and toxic gases in case of fire
- 2) Conditions to avoid:
  - Stay away from heat, spark, fire, and high fever – No smoking
- 3) Incompatible materials:
  - combustible materials, Reductivity
  - Segregation group :
- 4) Hazardous decomposition products:
  - Irritating and highly toxic gases may be generated by pyrolysis or combustion during burning
  - corrosive/toxic fume

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- irritant, toxic gas


## 11. TOXICOLOGICAL INFORMATION

### 1) Exposure route information

- ☐ Short-term exposure can cause irritation and symptoms of drunkenness symptoms
- ☐ Short-term exposure can cause short-term breathing difficulties, drunkenness symptoms, blue skin color, and lung congestion
- ☐ Causes irritation when exposed for a short or long period of time

### 2) Health hazard information

- ☐ Acute toxicity:
  - Oral: LD50 > 5000 mg/kg in rats (OECD TG 401)
  - Dermal LD50 > 5000 mg/kg in rabbits (OECD TG 402)
  - Inhalation LC50 > 5000 mg/m3 (OECD TG 403)
- ☐ Skin corrosion/Irritation: Using qualitative weight of evidence reasoning, cycloparaffinic C9-C14 aliphatic, <2% aromatic hydrocarbon fluids are dermal irritants to rabbits (OECD TG 404) and to humans.
- ☐ Serious eye damage/Irritation: C9-C14 aliphatic, <2% aromatic hydrocarbon fluids are not irritating for rabbits (OECD TG 405)..
- ☐ Respiratory sensitization: No studies were located to indicate that C9-C14 aliphatic, <2% aromatics are respiratory irritants.
- ☐ Skin sensitization: C9-C14 aliphatic, < 2% aromatic hydrocarbons fluids were determined not to be skin sensitizers using Magnusson and Kligman Guinea-Pig Maximization tests (OECD TG 406).
- ☐ Carcinogenicity: The available data and available weight of evidence demonstrate that the C9-C14 aliphatic, <2% aromatics are highly unlikely to be carcinogenic and are not classifiable as carcinogens.
- ☐ Germ cell mutagenicity:
- ☐ Reproductive toxicity:
  - Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test (OECD TG 422) – Oral Administration – The NOAEL for developmental toxicity was 1000 mg/kg/day and the NOAEL for reproductive toxicity was 1000 mg/kg/day.
  - Reproduction / Developmental Toxicity Screening Test (OECD TG 421) – Oral Administration – The NOAEL for developmental toxicity was 1000 mg/kg/day and the NOAEL for reproductive toxicity was 1000 mg/kg/day.
  - READ ACROSS DATA: JP-8 Fuel (C9-C16 Aliphatics, 25% aromatics)
  - One-Generation Reproduction Toxicity Study (OECD TG 415) – Male Fertility Test – Oral Administration – 90d prior to mating, the NOAEL >=3000 mg/kg/day, which was the highest dose tested.
  - READ ACROSS DATA: C9-14 aliphatics (2-25% aromatic)

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- Reproduction / Developmental Toxicity Screening Test (OECD TG 421) – Inhalation Administration – The NOAEC for developmental toxicity was  $\geq 300$  ppm (1720 mg/m<sup>3</sup>)
- Specific target organ toxicity (single exposure):
  - Acute CNS effects: NOAEC for in rats: 1500 to 2500 mg/m<sup>3</sup> (based primarily on volatility)
  - Subchronic (13 weeks) neurotoxicity: NOAEC for rats:  $>24.3$  g/m<sup>3</sup> (6646ppm)
- Specific target organ toxicity (repeated exposure): No data available
- Aspiration hazard: Kinematic viscosity: about 1.42 cSt at 40°C
- Other Harmful Effects: No data available

## 12. ECOLOGICAL INFORMATION


- 1) Aquatic toxicity:
  - Fish: No data available
  - Crustacean: No data available
  - Aquatic algae: No data available
- 2) Persistence and degradation:
  - Residuality: No data available
  - decomposability: No data available
- 3) Bioaccumulative potential:
  - accumulation: No data available
  - biodegradability: No data available
- 4) Mobility in soil: 0.81 mg/kg soil dw
- 5) Other adverse effects: No data available

## 13. DISPOSAL CONSIDERATIONS

- 1) Disposal methods: Pre-treatment of oil and water separation methods
- 2) Precautions (including disposal of contaminated container of package):
  - Discard the contents container (in accordance with the relevant laws and regulations).

## 14. TRANSPORT INFORMATION

- 1) 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

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## 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: Not applicable
- 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
    - 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): Asp. Cat. 1; R65
    - EU Classification (Risk Phrases): R65
    - EU Classification (Safety Phrases): S2, S23, S24, S62

## 16. OTHER INFORMATION

- 1) Reference:
  - Korea Occupational Safety & Health Agency MSDS 2018
  - ChemWATCH
  - IUCLID
  - ECOTOX
  - NITE
  - Recommendations on the transport of dangerous goods
  - NCIS
  - Emergency response guide book
  - The Chemical Database
  - ICSC
  - RTECS
  - ESIS
  - HPVIS

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