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

- 1) Product identifier: PARASOL-104
- 2) Relevant identified uses of the substance or mixture and uses advised against:
 - Use in Cleaning and cleaning agents, solvents.
- 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
Flammable liquids Cat.4
Acute toxicity (transdermal) Cat.5

- 2) Allocation label elements including precautionary statements

- Hazard pictograms:



- Signal word:


- Danger

- Hazard statements

- H227: Combustible liquid
- H304: May be fatal if swallowed and enters airways.
- H313: May be harmful in contact with skin

Precautionary statements

- Prevention:
 - P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P280: Wear protective gloves/protective clothing/eye protection/face protection.
- Response:
 - P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 - P312: Call a POISON CENTER/ doctor/if you feel unwell.
 - P331: Do NOT induce vomiting.
 - P370+P378: In case of fire: Use suitable extinguishing media to extinguish.
- Storage
 - P403: Store in a well ventilated place.
 - P405: Store locked up.
- Disposal:

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· P501: Dispose of contents/container in accordance with the waste-related laws.

3) Other hazards:

– No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Common name	CAS No.	Concentration(wt%)
Alkanes, C10-14	–	93924-07-3	100

* EU REACH Registration Number: 01-2119475608-26-0003

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.
- Wash skin with soap and water.

3) Following inhalation:

- Call 911 or emergency medical service.
- Do not induce vomit
- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.
- Move victim to fresh air.
- Keep victim warm and quiet.

4) Following ingestion:


- Get medical aid immediately.
- If swallowed, seek medical advice immediately.

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:

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- Water spray/fog, regular foam (Suitable extinguishing media)
- Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam
- Direct water (Unsuitable extinguishing media)

2) Special hazards arising from the substance or mixture:

- Containers may explode when heated.
- Highly flammable: easily ignited by heat, sparks or flame
- Runoff may create fire or explosion hazard.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air
- Vapors may cause dizziness or asphyxiation without consciousness
- Fire may produce irritating, corrosive and/or toxic gases.
- Inhalation and contact may cause skin and eye irritation or burns

3) Special protective equipment for firefighters:

- Cautions ; Most of liquids are lighter than water.
- Keep fire away from fire area to extinguish fire.
- Most vapors are heavier than air and can spread along the ground and accumulate in lowlands or confined spaces.
- Substance may be transported hot.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.


6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment:

- Eliminate all ignition sources.
- Wipe up spills immediately and follow the protective precautions.
- Stop leak if you can do it without risk.
- Please note that materials and conditions to be avoided.
- 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.

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3) For cleaning up:

- Cover with absorbent dry sand / dirt or other non-combustible material and transfer to chemical waste container.
- Absorb liquid and wash contaminated area with detergent and water
- 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:

- All equipment used when handling the product must be grounded.
- Follow all MSDS / label precautions as product residue may remain after the container is emptied.
- Handling refer to engineering control/personal protection section.
- Open the cap carefully before opening.
- Do not breathe vapors from heated materials.
- Do not enter storage area without proper ventilation.
- Note the materials and conditions to avoid.
- Caution: Heat
- Measure atmospheric oxygen concentration and ventilate the area during the operation since low-closed area can cause oxygen deficiency.

2) Conditions for safe storage (including any incompatibilities):

- Please note that materials and conditions to be avoided.
- Store in a locked place.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Alkanes, C10-14	No data available	No data available	No data available


2) Appropriate engineering controls:

- Use process containment, local exhaust or other engineering controls to control air levels below exposure limits.

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:

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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 goggles or breathable goggles to protect eyes from vaporous organic substances that cause eye irritation or other health hazards.
- 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): Clear colorless liquid at 20°C and 1 atm
- 2) Oder: No data available
- 3) Oder threshold: No data available
- 4) pH: No data available
- 5) Melting point/freezing point: -23 °C
- 6) Initial boiling point and boiling range: 190-255 °C
- 7) Flash point: 71-80 °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: <1.3332 hPa @ 20°C
- 12) Solubility(ies): 0.005 mg/L @ 20°C (in Water, Calculated)
- 13) Vapour density: No data available
- 14) Relative density: 0.70-0.80 @ 20°C
- 15) n-octanol/water partition coefficient: 5.1-7.2 @ 20°C
- 16) Auto ignition temperature: No data available
- 17) Decomposition temperature: No data available
- 18) Viscosity: 1.0-2.0 cSt at 40°C
- 19) Molecular weight(mass): 170-180

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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.
 - Vapors may form explosive mixtures with air
 - Vapors may cause dizziness or asphyxiation without consciousness
 - Inhalation and contact may cause skin and eye irritation or burns
 - Fire may produce irritating, corrosive and/or toxic gases.
- 2) Conditions to avoid:
 - Ignition source(heat, spark, flame)
- 3) Incompatible materials:
 - No data available
- 4) Hazardous decomposition products:
 - Irritating, corrosive and/or toxic gases

11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
 - No data available
- 2) Health hazard information
 - Acute toxicity:
 - Oral: LD50 > 3990 mg/kg (Rat)
 - Dermal: LD50 3980-5730 mg/kg (Rabbit)
 - Inhalation(Gas): No data available
 - Inhalation(Vapor): No data available
 - Inhalation(Dust, mist): No data available
 - Skin corrosion/Irritation:
 - Weak irritation of rabbit skin(OECD TG 404)
 - Serious eye damage/irritation:
 - Tests on rabbits result in mild eye irritation(OECD TG 405)
 - Respiratory sensitization:
 - No data available
 - Skin sensitization:
 - C9-C14 Aliphatic (<2% aromatics) group does not cause skin sensitization
 - Carcinogenicity:
 - No data available
 - Germ cell mutagenicity:
 - All in vitro and in vivo test results negative
 - Reproductive toxicity:
 - C9-C14 Aliphatic (<2% aromatics) group does not show reproductive or developmental

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toxicity

- Specific target organ toxicity (single exposure):
 - It did not last for the duration of the observation (OECD TG 403)
- Specific target organ toxicity (repeated exposure):
 - No significant systemic toxicity
- Aspiration hazard: (Cat. 1)
 - Aliphatic hydrocarbon solvents [\leq 2% Aromatics] of C9–C14 have aspiration hazard when liquid enters the lungs due to the physicochemical properties, especially viscosity

12. ECOLOGICAL INFORMATION


- 1) Aquatic toxicity:
 - Fish: No data available
 - Crustacean: LC50 23mg/l 24hr Daphnia magna (IUCLID)
 - Aquatic algae: No data available
- 2) Persistence and degradation: log Kow= 5–7.2
- 3) Bioaccumulative potential: 589–11430 (SIDS)
- 4) Mobility in soil: 22000–42700 (IUCLID)
- 5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

- 1) Disposal methods:
 - High temperature incineration.
 - After recovering recycled materials such as organic solvents, burn the residues at high temperature.
- 2) Precautions (including disposal of contaminated container of package):
 - Dispose of contents container (according to the description in the related regulation).

14. TRANSPORT INFORMATION

- 1) UN No.: 3295
- 2) Proper shipping name: HYDROCARBONS, LIQUID, N.O.S, (Alkanes, (C=10–14))
- 3) Class or division: 3
- 4) Packing group: Not applicable
- 5) Marine pollutant: Not applicable
- 6) Special safety response for transportation or transportation measure:
 - Emergency measures in case of fire : F–E
 - Emergency measures in case of Outflow : S–D

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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
- 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): 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

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<ul style="list-style-type: none"> • ICSC • RTECS • NIOSH Pocket guide • ESIS • ECHA CHEM • HPVIS • SIDS • IUCLID <p>2) Date of initial completion: 1996. 07. 21</p> <p>3) Number of revised/Date of last revision: 10 / 2022. 02. 04</p> <p>4) Other: No data available</p>
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