MATERIAL SAFETY DATA SHEET (MSDS)

1. PRODUCT AND COMPANY IDENTIFICATION

1) PRODUCT NAME GAS ONE PARAFFIN LAMP OIL

2) RECOMMENDED USE OF THE PRODUCT AND RESTRICTIONS ON USE

RECOMMENDED USE For oil lamps

RESTRICTIONS ON USE Use in Cleaning and cleaning agents, solvents.

3) MANUFACTURER/SUPPLIER/DISTRIBUTOR INFORMATION

NAME GS Chem Co., Ltd.

ADDRESS (27850) 89, Sincheoksandan 5-ro, Deoksan-eup, Jincheon-gun, Chungcheongbuk-do, Republic of Korea 27850

EMERGENCY PHONE NUMBER +82-70-5140-7446

2. HAZARDS 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 applicable
- 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 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, C14-17	-	90622-47-2	100

4. FIRST AID MEASURES

1) Following eye contact:
- Wash the eyes under running water for more than 20 minutes when in contact with the substance.
- Get emergency medical attention.

2) Following skin contact:
- Get emergency medical attention.
- Remove contaminated clothing and shoes and isolate the contaminated area.
- Wash the skin and eyes under running water for more than 20 minutes when in contact with the substance.
- Prevent the spread of the contaminated area in case of minor skin contact.

3) Following inhalation:
- If breathing is difficult, provide oxygen.
- If you do not breathe, perform artificial respiration.
- Move it to a place with fresh air.
- Keep it warm and steady.

4) Following ingestion:
- Get medical aid 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:
- Small fire: Drying chemicals (appropriate extinguishing agents)
- Small fire: water spray (appropriate extinguishing agent)
- Small fire: CO2 (appropriate extinguishing agent)
- Direct injection (inappropriate digestive medicine)
- Blaze: Drying chemicals (appropriate extinguishing agents)
- Blaze: My alcohol foam (appropriate digestive medicine)
- Blaze: a large amount of water (appropriate extinguishing agent)
- Blaze: Water spray/ fog (appropriate extinguishing agent)
- Blaze: General foam (appropriate digestive medicine)
- Blaze: CO2 (appropriate extinguishing agent)

2) Special hazards arising from the substance or mixture:
- Container may explode when heated
- Non-inflammable and non-inflammable materials do not burn themselves, but they can be decomposed when heated, resulting in corrosive/toxic fume.
- Some may burn but do not ignite easily
- May produce irritable, corrosive and toxic gases in a fire

3) Special protective equipment for firefighters:
- Be careful because it may be molten and transported.
- Dig a ditch for the disposal of digestive water and lock it up so that the substance does not disperse.
- If it is not dangerous, move the container from the fire area.
- In the event of a tank fire, Fire should be carried out at the maximum distance or use unmanned fire extinguishing equipment.
- In the event of a tank fire, cool the container with plenty of water even after digestion is extinguished.
- In case of a tank fire, if the pressure release device has a high pitch or discoloration of the tank, step down immediately.
- In the event of a tank fire, step away from the tank in flames.
- Use unmanned fire extinguishing equipment in case of a blaze in a tank fire and let it burn if it is not possible.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment:
- Remove all sources of ignition.
- Stop the leak if it's not dangerous.
- Do not touch damaged containers or leaks without wearing proper protective clothing.
- Cover with plastic sheet to prevent spread.
- Pay attention to substances and conditions to avoid.
- All equipment must be grounded when handling materials.

2) Environmental precautions:
- Prevent entry into waterways, sewers, basements or confined areas.

3) For cleaning up:
- Cover or absorb dry sand/soil or other non-flammable materials and transfer them to a container.

7. HANDLING AND STORAGE

1) Precautions for safe handling:
- Refer to engineering management and personal protective gear for work.
- Pay attention to substances and conditions to avoid.

2) Conditions for safe storage (including any incompatibilities):
- No data available

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:

Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
Alkanes, C14-17	No data available	No data available	No data available

2) Appropriate engineering controls:
- No data available

3) Personal protection equipment

○ Respiratory protection:
- Wear respirators that are certified by the Industrial Safety and Health Service to fit the physical and chemical characteristics of exposed gases/liquids.
- 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 suitable protective goggles and face shields.
- Provide emergency showers and eyewash.

○ 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
2) Oder: the smell of petrochemical
3) Oder threshold: No data available
4) pH: No data available
5) Melting point/freezing point: 8 ℃
6) Initial boiling point and boiling range: 247-266 ℃
7) Flash point: 114 ℃
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: <0.05 hPa @ 20℃, 0.09 hPa @ 50℃
12) Solubility(ies): <1.2 mg/L @ 20℃
13) Vapour density: No data available
14) Relative density: 0.7691 @ 15℃
15) n-octanol/water partition coefficient: 9.25 @ 25℃
16) Auto ignition temperature: 215℃
17) Decomposition temperature: No data available
18) Viscosity: 2.49 cSt at 40℃
19) Molecular weight(mass): 195-205

10. STABILITY AND REACTIVITY

1) Stability and hazardous reactivity:
- Container may explode when heated
- Some may burn but do not ignite easily
- Non-inflammable and non-inflammable materials do not burn themselves, but they can be decomposed when heated, resulting in corrosive/toxic fume.
- May produce irritable, corrosive and toxic gases in a fire
2) Conditions to avoid:
- Ignition source(heat, spark, flame)
3) Incompatible materials:
- Combustible and reducible substances
4) Hazardous decomposition products:
- Corrosive/toxic steam
- irritable, corrosive and toxic gases

11. TOXICOLOGICAL INFORMATION

1) Exposure route information
- Absorbable on inhalation
- absorption of the body by inhalation and fire extinguisher
- Absorption is possible through skin, fire extinguisher, and aerosols.
- Absorbable when inhaling steam
- Body absorption by inhalation, skin and fire extinguisher
2) Health hazard information
PARASOL-147 ISU CHEMICAL CO., LTD A4(210×297mm)
○ Acute toxicity:
- Oral: LD50 > 5000 mg/kg (Rat, OECD TG 401)
- Eye/Skin: LD50>2000 mg/kg (Rat, OECD 402)
- Inhalation (Aerosol / Vapor): LC50 >5,991 ㎎/m3 (Rat OECD 403)
(5,428 ㎎/m3 Aerosol, 562 ㎎/m3 Vapor)
○ Skin corrosion/Irritation: Rabbit No Stimulation OECD 404

○ Serious eye damage/irritation: Rabbit No stimulation OECD 405
○ Respiratory sensitization: No data available
○ Skin sensitization: Not applicable(Guinea pig,OECD 405)
○ Carcinogenicity: Not applicable
○ Germ cell mutagenicity: In vitro mammalian cell gene mutation test negative, salmonella typhoid return mutation test negative OECD 471 GLP
○ Reproductive toxicity: Not applicable(Rat, OECD 416)
○ Specific target organ toxicity (single exposure): Not applicable(OECD 401, 402, 403)
○ Specific target organ toxicity (repeated exposure): Not applicable(RAT, OECD 408)
○ Aspiration hazard: (Cat. 1)
- Kinematic viscosity: about 2.49 mm2/s @ 20℃

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity:
- Fish: LL50 >87,556 ㎎/ℓ 96 hr Oncorhnchus mykiss
- Crustacean: NOELR > 100% WAF㎎/ℓ Ceriodaphnia dubia , 24hr
- Aquatic algae: EL50 >1000 ㎎/ℓ 72 hr Skeletonema costatum(ISO 10253)
2) Persistence and degradation: 74%(28D)
3) Bioaccumulative potential: No data available
4) Mobility in soil: Koc= 1772000
5) Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods:
- Dispose of oil and water separable in advance by using oil and water separation method.
- Dispose of liquid organic solvents as waste organic solvents in any of the following ways.
- Incineration
- After disposing by evaporating and concentrating method, incinerate the residue.
- After purifying by separating, distilling, extracting and filtering, incinerate the residue.
- Dispose of residues generated after disposal using neutralization, oxidation, reduction, polymerization, and condensation reactions, or dispose of them again by coagulation, precipitation, filtration, and dehydration, and incinerate the residues.
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.: 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
4) Wastes Control Act in Korea: No data available
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(Mont-real 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
2) Date of initial completion: 2009. 07. 15
3) Number of revised/Date of last revision: 7 / 2022. 03. 04
4) Other: No data available