

KA GEAR-5 80W/90

1. IDENTIFICATION**A. Product name:**

KA GEAR-5 80W/90

B. Recommended use of the chemical and restrictions on use:

Gear Oil

C. Information of manufacturer, supplier: **Company:**

SK Lubricants Co.,Ltd.

 Address:SK building Seorindong Jongrogu Seoul Korea 140-1 Wonchondong Yuseonggu Daejeon Korea
110-30 Gosadong Namgu Ulsan Korea **Emergency Telephone No:**82-2-2121-6581~7
82-42-866-7535
82-52-208-3811**2. HAZARD IDENTIFICATION****A. Classification:**Acute Toxicity-Inhalation : 4
Skin corrosion/irritation : 2
Eye Damage/Irritation : 2A**B. Label element, including precautionary statements:** **Symbols:** **Signal word(s):**

Warning

 Hazard statement(s):

- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H332: Harmful if inhaled

○ Precautionary statement(s):

⊙ Prevention

- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash ... thoroughly after handling.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

⊙ Response

- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P321: Specific treatment (see ... on this label).
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P337+P313: If eye irritation persists: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.

⊙ Storage

- None

⊙ Disposal

- None

C. Other hazards which do not result in classification:

- o NFPA Code : Health:1, Flammability: 1, Reactivity: 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical identity	Common name, synonym	CAS number	Percentages(%)
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Highly refined mineral oil	64742-54-7	32.5~41.8
Residual oils (petroleum), solvent-dewaxed	Highly refined mineral oil	64742-62-7	55.2~62.5
Additive mixture	Not Applicable	Not Determined	3.0~5.0

4. FIRST AID MEASURES

A. Eye contact:

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

B. Skin contact:

Remove contaminated clothing and wash skin with plenty of soap and water. Flush with plenty of water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

C. Inhalation:

If overcome by exposure, remove person to fresh air immediately.
Give oxygen or artificial respiration as needed.
Obtain emergency medical attention. Prompt action is essential.

D. Ingestion:

Do not induce vomiting. Obtain emergency medical attention. Prompt action is essential.

E. Most important symptoms/effect, acute and delayed:

May cause slight eye and skin irritation. Not expected to be a sensitizer.

F. Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES**A. Suitable extinguishing media:**

SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam.
LARGE FIRE: Use water spray, water fog or alcohol-resistant foam

B. Specific hazards arising from the chemical:

Thermal decomposition may produce carbon monoxide and other toxic vapors.

C. Special protective equipment and precautions for firefighters:

Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear. Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal flash point. Fight fire from a safe distance/protected location. Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Use water spray/fog for cooling. Avoid frothing/steam explosion. Burning liquid may float on water. Although water soluble, may not be practical to extinguish fire by water dilution. Notify authorities immediately if liquid enters sewer/public waters.

6. ACCIDENTAL RELEASE MEASURES**A. Personal precautions, protective equipment and emergency procedures:**

Wear chemical resistant gloves such as: Butyl rubber.
Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn.
The equipment must be cleaned thoroughly after each use.

B. Environmental precautions:

May contaminate water supplies/pollute public waters. Evacuate/limit access.
Equip responders with proper protection.
Prevent flow to sewer/public waters. Stop release. Notify fire and environmental authorities.
Restrict water use for cleanup.

C. Methods and materials for containment and cleaning up:

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or

walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapor but may not prevent ignition in closed spaces. Recover by pumping or with suitable absorbent

7. HANDLING AND STORAGE

A. Precautions for safe handling:

Avoid contact with skin. Use proper bonding and/or grounding procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source).

B. Conditions for safe storage, including incompatibilities:

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be grounded and bonded. Drums must be grounded and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters.

Storage Temperature: [Ambient]

Storage Pressure: [Ambient]

Suitable Containers/Packing: Barges Drums Tank Cars Tank Trucks

Suitable Materials and Coatings: Carbon Steel Stainless Steel Polyethylene Polypropylene Teflon

Unsuitable Materials and Coatings: Natural Rubber Butyl Rubber Ethylene-propylene-diene monomer (EPDM) Polystyrene

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits in the air of the workplace, biological limit values:

<Mineral oil mist>

o OSHA TWA: 5 mg/m³

o ACGIH TWA: 5 mg/m³, STEL: 10 mg/m³

o NIOSH TWA (10hr): 5mg/m³, STEL 10mg/m³

B. Appropriate engineering controls:

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

C. Individual protection measures:

Respiratory protection:

If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator

Eye protection:

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.

Hand protection:

Wear chemical resistant gloves such as: Butyl rubber.

○ **Body protection:**

Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance (physical state, colour etc):

Clear brown liquid

B. Odour:

Mild petroleum odour

C. Odour threshold:

No data available.

D. pH:

No data available.

E. Melting point/freezing point:

No data available.

F. Initial boiling point and boiling range:

More than 316 °C

G. Flash point:

More than 200 °C

H. Evaporation rate:

No data available.

I. Flammability(solid, gas) :

Not applicable

J. Upper/lower flammability or explosive limits:

No data available.

K. Vapour pressure:

Less than 0.1kPa at 20°C

L. Solubility(ies):

No data available.

M. Vapour density:

More than 5 (Air =1)

N. Specific gravity:

0.89 (Water=1) 15°C

O. Partition coefficient: n-octanol/water:

No data available.

P. Auto-ignition temperature:

No data available.

Q. Decomposition temperature:

No data available.

R. Viscosity:

Approximately 14.9cSt at 100°C

10. STABILITY AND REACTIVITY

A. Chemical stability:

Material is stable under normal conditions.

B. Possibility of hazardous reactivity:

No data available.

C. Conditions to avoid:

Heat, sparks, open flame, other ignition sources, and oxidizing conditions.

D. Incompatible materials:

Strong oxidizers, Amine.

E. Hazardous decomposition products:

Carbon oxides (CO, CO₂) , Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposures:**○ Inhalation exposure:**

May cause slight irritation.

Ingestion exposure:

May cause vomit, diarrhea

Skin exposure:

May cause slight skin irritation.

Eye exposure:

May cause slight eye irritation.

B. Delayed and immediate effects and also chronic effects from short and long term exposure:

Acute toxicity:

<Highly refined mineral oil>-IUCLID
o Oral- LD50(rat) >5000mg/kg
o Skin- LD50(rabbit): >5000mg/kg
o Inhalation: LC50(rat): 2.18mg/L/4h

Skin corrosion/irritation:

May cause slight skin irritation.

Serious eye damage/irritation:

May cause slight eye irritation.

Respiratory sensitization:

Not expected to be a sensitizer.

Skin sensitization:

Not expected to be a sensitizer.

Carcinogenicity:

Not applicable

Germ cell mutagenicity:

Not applicable

Reproductive toxicity:

Not applicable

Specific target organ systemic toxicity-single exposure:

Not applicable

Specific target organ systemic toxicity-repeated exposure:

Not applicable

○ **Aspiration hazard:**

No data available.

C. Numerical measures of toxicity(such as acute toxicity estimate):

No data available.

12. ECOLOGICAL INFORMATION

A. Aquatic, terrestrial organisms toxicity:

<Highly refined mineral oil>

Chronic Toxicity data (fish), NOEC: >5000mg/L (7day)-IUCID Data

Chronic Toxicity data (Aquatic Invertebrates), NOEC=552mg/L (7day)-IUCID Data

* NOEC: No Observed Effect Concentration

B. Persistence and degradability:

Expected to be biodegradable.

C. Bioaccumulative potential:

Not applicable

D. Mobility in soil:

Expected to have mobility in soils.

E. Other adverse effects:

No data available.

13. DISPOSAL CONSIDERATIONS

A. Disposal methods:

Use only licensed transporters and permitted facilities for waste disposal.

B. Disposal considerations(Specify disposal container and methods):

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION

A. UN Number:

Not applicable

B. UN Proper Shipping Name:

Not applicable

C. Transport hazard class(es):

Not applicable

D. Packing group, if applicable:

Not applicable

E. Environmental hazards:

Not applicable

F. Special precautions for user:

Not applicable

15. REGULATORY INFORMATION**A. Safety, health and environmental regulations specific for the product in question:**

- o Industrial Safety Health Law(Korea): Chapter 41
- <EU Classification and Labelling information>
- o Classification: Carc.Cat.2: R45
- o Symbol(s) and Indication(s) of Danger : T – Toxic
- o Risk Phrases
 - R45: May cause cancer.
- o Safety Phrases
 - S53: Avoid exposure – obtain special instructions before use.
 - S45: In case of accident or if you feel unwell, seek medical advice immediately(show the label where possible).

16. OTHER INFORMATION**A. References and sources for data:**

- 1) SK energy coporation R&D Center
- 2) Globally Harmonized System of classification and labelling of chemicals(GHS), First revised edition, United Nations.
- 3) United States National Library of Medicine.
- 4) EINECS (European Inventory of Existing Commercial chemical Substances)
- 5) IARC(International Agency for Research on Cancer.)
- 6) NIOSH (The National Institute for Occupational Safety and Health)
- 7) ACGIH (American Conference of Governmental Industrial Hygienists.)
- 8) IUCLID Data
- 9) ICSC (International Chemical Safety Cards)– ILO
- 10) Transport of Dangerous Goods–UN
- 11) Korea Occupational Safety & Health Agency
- 12) U.S Department of Health and Human Services.
- 13) MSDS of raw material from supplier

B. Originated date:

2009. 06. 16.

C. Revision number and date:

Revision number: 0.

Final revision data: 2009. 06. 16.