

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier****Product name:** HARMONIC GREASE® SK-3**Product code:** None.**SDS No.** M-7343**1.2 Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture:** Grease for industrial applications.**Recommend** No further relevant information available.**use/Restrictions on use:** Not applicable.**1.3 Details of the supplier of the safety data sheet****Company name:** Harmonic Drive Systems Inc.**Address:** 6-25-3 Minami-Oi, Shinagawa-ku, Tokyo 140-0013 Japan**Telephone number:** (+81)3-5471-7800**1.4 Emergency telephone number**

(+1)978-532-1800

SECTION 2 HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Classification(EC1272/2008):** The product is not classified as hazardous according to the CLP regulation.**Physical hazards:**

Flammable solids: Not classified.

Pyrophoric solids: Not classified.

Self-heating substances and mixtures: Not classified.

Corrosive to metals: Not classified.

Health hazards:

Acute toxicity-Oral: Classification not possible.

Acute toxicity-Dermal: Classification not possible.

Acute toxicity-Inhalation: mist: Classification not possible.

Skin corrosion/irritation: Classification not possible.

Eye damage/ irritation: Classification not possible.

Sensitization-Respiratory: Classification not possible.

Sensitization-Skin: Classification not possible.

Germ cell mutagenicity: Classification not possible.

Carcinogenicity: Classification not possible.

Reproductive toxicity: Classification not possible.

Specific target organ toxicity
-Single exposure: Classification not possible.Specific target organ toxicity
-Repeated exposure: Classification not possible.

Aspiration hazard: Classification not possible.

Environmental hazards:Hazardous to the aquatic environment
-Acute (short-term) aquatic toxicity: Classification not possible.

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Hazardous to the aquatic environment
 -Chronic (long term) aquatic toxicity: Classification not possible.

The hazards without the above mention are "Not applicable" or "Classification not possible".

Classification(OSHA HCS 29 CFR 1910.1200):

The product is not classified as hazardous according to OSHA GHS regulations within the United States.

2.2 Label elements

Hazard pictogram(s): No pictogram.

Signal word: No signal word.

Hazard statement(s): No hazard statement.

Precautionary statement(s):

Prevention: Not required.

Response: Not required.

Storage: Not required.

Disposal: Not required.

2.3 Other hazards

Other hazards which do not result in classification: Combustibility. Keep away from ignition sources such as heat/sparks/open flames.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture Mixture

Ingredient(s):

| Chemical name / Generic name | CAS# | EC# | Wt% | EU Hazard class | EU Category code | USA OSHA PEL | ACGIH TLV | EU ILV |
|------------------------------|--------------|--------------|-------|-----------------|------------------|--|--|-----------------|
| Refined mineral base oil | Confidential | Confidential | 85-95 | None | None | 5mg/m ³ (TWA : as oil mist) | 5mg/m ³ (TWA : as oil mist) | Not established |
| Lithium soap thickener | Confidential | Confidential | 1- 10 | None | None | Not established | Not established | Not established |
| Additives | Confidential | Confidential | 1- 10 | None | None | Not established (Except the below) | Not established (Except the below) | Not established |
| (Organic molybdenum.) | 68412-26-0 | 270-180-5 | (1-5) | None | None | 15 mg/m ³ TWA : Total dust as Mo | 10 mg/m ³ TWA : Insoluble compounds, as Mo | Not established |

Carcinogen:

Chemical name: None. **CAS#:** **Reference:**

No component of this product is listed as a human carcinogen or a potential carcinogen in IARC Monographs, U.S. NTP, OSHA regulation, and Annex VI of Regulation (EC) 1272/2008.

Refined mineral base oil, by definition, is considered hazardous according to OSHA. Because it carries Threshold limit value(TLV) for mineral oil mist. Refined mineral base oil contain <3.0% DMSO extractable material.

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PBT substance and vPvB substance:**Chemical name:** None. **CAS#:** **Category:**

No component of this product is a PBT or vPvB substance under Regulation (EC)1907/2006.

A statement that the specific chemical identity(ies) and/or exact percentage(s) of composition has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES**4.1 Description of first aid measures**

Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Skin: Wash with soap and water. Get medical attention if irritation develops.

Eye: Flush immediately with water for at least 15 minutes. Get immediate medical attention.

Ingestion: Do not make person vomit unless directed to do so by medical personnel.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed**Notes to physician:** Treatment should in general be symptomatic and directed to relieving any effects.**SECTION 5 FIRE FIGHTING MEASURES****5.1 Extinguishing media**

Suitable extinguishing media: Use water fog, foam, dry chemical or carbon dioxide to extinguish flames.

Unsuitable extinguishing media: DO NOT use forcible water. See Section 11 for more detailed information on health effects and symptoms.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products: Combustion products may include the following:
Carbon oxides (CO, CO₂), oxides of sulfur.

5.3 Advice for firefighters

Special precautions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

SECTION 6 ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: Eliminate all ignition sources. Evacuate surrounding areas.

For emergency responders: Particular danger of slipping on leaked/spilled product.

6.2 Environmental precautions

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Should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.

6.3 Methods and material for containment and cleaning up

Small spill: Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Suction or scoop the spill into appropriate disposal or recycling vessels, then cover spill area with oil absorbent. Dispose of via a licensed waste disposal contractor.

6.4 Reference to Other Sections

See SECTION 7 for information on safe handling.

See SECTION 8 for information on personal protection equipment.

See SECTION 13 for disposal information.

SECTION 7 HANDLING AND STORAGE**7.1 Precautions for safe handling**

Protective measures: Put on appropriate personal protective equipment (see SECTION8).

Advice on general occupational hygiene: Workers should wash hands and face before eating, drinking and smoking. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see SECTION 10). Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/ containers designed for use with this product. Do not store in unlabeled containers.

Not suitable: Prolonged exposure to elevated temperature.

7.3 Specific end use(s)

No further relevant information available.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**8.1 Control parameters**

No exposure limit value known on the product itself.
 OSHA PEL: TWA: 5 mg/m³ 8 hours. (as oil mist, mineral)
 ACGIH TLV: TWA: 5 mg/m³ 8 hours. (as oil mist, mineral)
 NIOSH REL: TWA: 5 mg/m³ 10 hours. (as oil mist, mineral)
 EU ILV: Not established

8.2 Exposure controls

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| Appropriate engineering controls: | When mist is generated, the limited part should be ventilated. A washing facility/water for eye and skin cleaning purposes should be present. | |
| Individual protection measures, such as personal protective equipment | | |
| Eye/face protection: | <input checked="" type="checkbox"/> Required <input type="checkbox"/> Not required | Wear safety glasses with side shields. |
| Skin(hand/other) protection: | <input checked="" type="checkbox"/> Required <input type="checkbox"/> Not required | To prevent contact, wear impervious clothing such as gloves, apron. |
| Respiratory protection: | <input type="checkbox"/> Required <input checked="" type="checkbox"/> Not required | No special respiratory protection equipment is required under normal conditions of use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. |
| Thermal hazards: | <input type="checkbox"/> Required <input checked="" type="checkbox"/> Not required | Not normally required. |
| Environmental exposure controls: | Avoid release to the environment. | |

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|--|-----------------------------|
| Appearance: | Smooth, yellow, semi-solid. |
| Odor: | Bland odor. |
| Odor threshold: | Not determined. |
| pH: | Not determined. |
| Melting point/ freezing point(°C): | Not determined. |
| Initial boiling point and boiling range (°C): | Undetermined. |
| Flash point(°C): | >160 (SETA) |
| Evaporation rate: | Not determined. |
| Upper/lower flammability or explosive limits: | Not determined. |
| Vapor pressure: | Not determined. |
| Relative density: | Not determined. |
| Density/specific gravity: | Ca. 0.92 (25°C) |
| Solubility(ies): | Negligible (in water). |
| Partition coefficient: n-octanol/water: | Not determined. |
| Auto-ignition temperature(°C): | Not determined. |
| Decomposition temperature(°C): | Not determined. |
| Viscosity(m Pa s): | Not determined. |

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Explosive properties: Not determined.

Oxidizing properties: Not determined.

9.2 Other information

No further relevant information available.

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity No specific test data available for this product.

10.2 Chemical stability Stable Unstable

10.3 Possibility of hazardous reactions

May Occur Will not occur

10.4 Conditions to avoid Heat, sparks, flames, and other ignition sources.

10.5 Incompatible materials Acids. Oxidizing agents such as H₂O₂, permanganates and perchlorates.

Halogens and halogenated compounds.

10.6 Hazardous decomposition products

Carbon oxides (CO, CO₂), oxides of sulfur.

SECTION 11 TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects**

Likely routes of exposure: Eye contact, skin, ingestion.

Symptoms related to the physical, chemical, and toxicological characteristics:

See SECTION 4 for skin contact, eye contact, and ingestion.

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

Not applicable.

Numerous measures of toxicity :

Not applicable.

Acute toxicity:

Oral rats LD50: > 5000 mg/kg, (Base oil).

Dermal rats LD50: > 5000 mg/kg, (Base oil).

Inhalation (vapor): No data available.

Inhalation (mist) : No data available.

Skin corrosion/irritation:

No known significant effects or critical hazards.

Serious eye damage/ irritation:

No known significant effects or critical hazards.

Sensitization-Respiratory:

No known significant effects or critical hazards.

Sensitization-Skin:

No known significant effects or critical hazards.

Germ cell mutagenicity:

No known significant effects or critical hazards.

Carcinogenicity:

Base oil, Thickener, Additives: Not listed by IARC, OSHA, NTP, EU and ACGIH.

Toxic to reproduction:

No known significant effects or critical hazards.

Specific target organ systemic toxicity following single exposure:

No known significant effects or critical hazards.

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| | |
|---|---|
| Specific target organ systemic toxicity following repeated exposure: | No known significant effects or critical hazards. |
| Aspiration hazard: | No known significant effects or critical hazards. |
| Other information: | No further relevant information available. |

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic: No further relevant information available.

Terrestrial: No further relevant information available.

12.2 Persistence and degradability

No specific test data available for this product.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects No additional information available.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product and packaging: Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

SECTION 14 TRANSPORT INFORMATION

14.1 UN number Not regulated.

14.2 UN proper shipping name Not regulated.

14.3 Transport hazard class(es) Not regulated.

14.4 Packing group Not regulated.

14.5 Environmental hazards

Marine pollutant: Yes **Chemical name (wt%)** _____
 No

14.6 Special precautions for user Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU information
(EC)1907/2006
Title VII:

Not regulated.

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(EC)1907/2006

Title VIII: Not regulated.

(EC)1005/2009:

Not regulated.

(EC)805/2004:

Not regulated.

(EU)649/2012:

Not regulated.

Others:

No further relevant information available.

USA information

TSCA (Toxic substances control act)

Not regulated. All ingredients are listed.

Information on the label under OSHA HCS

Signal word: Not required.

Hazard statement(s): Not required.

Pictogram(s): Not required.

Precautionary statement(s): Not required.

Unclassified hazards Not applicable.

(HNOC):

Percentage of ingredient(s) Not applicable.

with unknown toxicity:

SARA Title III § 313

Chemical name: None. **Wt%:**

California Proposition 65

Chemical name: None. **Wt%:**

Others

No further relevant information available.

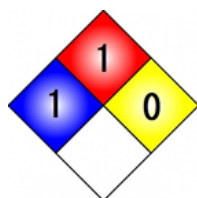
15.2 Chemical safety assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16 OTHER INFORMATION

Other information

NFPA safety information:



Health hazard : 1

Flammability : 1

Instability : 0

Special hazard : None.

National Fire Protection Association rating identifies hazards during a fire emergency.

NFPA hazard rating:
Minimal: 0, Slight: 1, Moderate: 2,
Serious: 3, Severe: 4

Date of issue: April 26, 2011

The date of preparation of the December 18, 2019

SDS or the last change to it:

Literature reference:

- U.S. Department of Labor, 29CFR Part 1910.

- U.S. Environmental Protection Agency, 40CFR Part 372.

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- U.S. Consumer Product Safety Commission, 16CFR Part 1500.
 - ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
 - U.S. Department of Health and Human Services National Toxicology Program, Annual Report on Carcinogens.
 - World Health Organization International Agency for Research on Cancer, IARC Monographs on the Evaluation on the Carcinogenic Risk of Chemicals to Humans.
 - EU Regulation (EC) 1005/2009, (EC) 805/2004, (EU) 649/2012, (EC) 1907/2006, (EC) 1272/2008 and Their Amendments.
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Abbreviations:

EU: European Union.

CLP: Regulation in the European Union through Classification and Labelling of Chemicals.

TSCA: Toxic Substances Control Act.

OSHA HCS: Occupational Safety and Health Act, Hazard Communication Standard (USA).

GHS: Globally Harmonized System of Classification and Labelling of Chemicals.

OSHA PEL: PEL (Permissible Exposure Limit) under Occupational Safety and Health Administration.

ACGIH TLV: TLV (Threshold Limit Value) under American Conference of Governmental Industrial Hygienists.

EU ILV: Indicative Limit Values for Occupational Exposure under EU Directive 91/322/EEC, 2000/39/EC and 2006/15/EC.

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative.
