1. Identification of the Substance/ Preparation and of the Company/ Undertaking

Product identifier:

Commercial Product Name: Harmonic Grease 4B No. 2

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: lubricants

Details of the supplier of the safety data sheet

Company designation: Harmonic Drive AG
Hoenbergstr. 14
65555 Limburg
Germany
Telephone: +49 64 31 50 080
Telefax: +49 64 31 50 08119

E-mail (competent person): winfried.hahn@harmonicdrive.de

Responsible Department: Product Management
Emergency telephone number: +49 64 31 50 080

2. Composition/ Information on Ingredients

Chemical characterization: Mixture of hydrocarbon type synthetic oil, Urea derivatives and additives.

3. Hazardous Identification

Physical and chemical hazards: Combustible

Adverse human health effects: Prolonged and repeated contact may cause skin irritation

Environmental effects: No effects

4. First Aid Measures

After inhalation: Keep the victim warm and quiet. Remove the victim from the contamination.

After contact with skin: Remove excess with cloth or paper and wash area thoroughly with soap and water.

After contact with eyes: Immediately flush with water for at least 15 min. Get medical attention if eye irritation persists.

After ingestion: Consult a physician. Do not induce vomiting.
5. Fire-fighting Measures

Suitable extinguishing media: Dry powder, Water fog, CO₂, Foam, Sand/Earth

Unsuitable extinguishing media: Do not use water except fog.

Special hazards: Thermal decomposition and combustion may produce carbon monoxide and/or carbon dioxide.

Special protective equipment for firefighters: Firefighters wear an approved self-contained breathing apparatus.

6. Accidental Release Measures

Personal precautions: Wear personal protective clothing. Special slip hazard by run out buried product.

Environmental precautions: Contaminated water/firefighting water hold back. In drains/surface water/groundwaters to arrive do not leave. Do not leave soil into the underground, to arrive.

Methods for clean-up/taking-up: Transfer bulk of mixture into another container. Absorb residue with an inert material such as earth, sand and vermiculite. Sweep up and dispose solid waste in accordance with regulations.

7. Handling and Storage

7.1 Handling

Advice on safe handling:
- Contact with eye may cause irritation. Use protective glasses or other devices to avoid contact with eyes. Contact with skin may cause irritation. Use protective gloves to avoid skin contact.
- Do not swallow (eating the product causes diarrhoea and vomiting).
- Wear gloves to avoid injury to the hands at opening the container.
- Keep out of the reach of children.

Advice on protection against fire and explosion:
- No special precautions necessary
- Attention of the general rules of the preventing operational fire protection

7.2 Storage

Requirements on storage rooms and vessels:
- Keep container closed until ready for use. Store away from fire source or sunlight and in a cool dry area.
8. Exposure Controls/ Personal Protection

8.1 Additional advice on system design

- In general not necessary

8.2 Personal protective equipment

Respiratory protection: Good general ventilation should be sufficient for most conditions
Hand protection: Protective gloves, rubber or plastic oil resistant
Body protection: Usual work clothes
Eye protection: Avoid contact with eyes, if necessary wear eye protector and during hot handling use a complete body protection.

9. Physical and Chemical Properties

9.1 Appearance

Form: Paste
Colour: Brightly yellow
Smell: Slight smell

9.2 Safety-relevant data

PH value: Not applicable
Boiling point: 247 °C
Flash point: 191 °C (method: seta flash method)
Ignition temperature: Over 400 °C
Self inflammability: Not known
Danger of explosion: No
Density: 0.88 g/ cm³
Water solubility: practically insolubly
10. Stability and Reactivity

Conditions to avoid: Product is stable under normal condition. Avoid to overheat ing and open flames.

Materials to avoid: Strong oxidizers such as hydrogen peroxide, bromine, and chromic acid.

Dangerous decomposition products: Carbon monoxide and dioxide during burning. Oxide of nitrogen, molybdenum, zinc, sulphur, phosphorus.

11. Toxicological Information

Acute toxicity: Hydrocarbon type synthetic oil LD_{50}. Acute oral 5 g/ kg <(rat).

Chronic toxicity: Prolonged and repeated skin contact may cause irritation.

12. Ecological Information

Information on elimination (persistence and degradability): No data available

Ecotoxic effects:
- Fish No data available
- Behavior in purification plants As intended product does not arrive into waste water.
- General advice Ecological data are not known. Do not let arrive product in environment uncontrolled. The product may arrive neither into water nor in drains and purification plants.

13. Disposal Considerations

Waste code: 13 02 06 Synthetic engine, gear and lubricating oils

Disposal: Incinerate in accordance with applicable regulation. Material may be recovered and recycled. Do not use pressure to empty this container. When empty, container may have vapor or product residue. Do not cut, puncture or weld near to the drum.

Dispose of contaminated packing and recommended cleaning: Dispose one-way bundles in accordance with the official regulations.
14. Transport Information

14.1 Land transport
GGVS/ GGVE: Not applicable

14.2 Inland waterways transport
ADN/ ADNR: Not applicable

14.3 Sea transport
IMDG-Code: Not applicable

14.4 Air transport
ICAO/ IATA-DGR: Not applicable

15. Regulatory Information

15.1 Labelling according to EU-guidelines
- Not applicable

15.2 National regulations
- Water hazard class (WGK): WGK 3 – severe hazard to water (self classification)

15.3 Further data to regulations
- Definition of WGK to “Administrative regulation of water-endangering materials” (VwVwS) of 17th May 1999 (self classification)

Regulatory information with regard to this substance in your country or your region should be examined by your own responsibility.

This SDS is an addition and complementary document beside the technical data sheet. The information is based upon our knowledge about the product at the date of edition. Since we cannot anticipate or control the different conditions under which this information or our product may be used, we make no guarantee that recommendations will be adequate for all individuals and situations.

Abbreviations, used in this safety data sheet

SDS: Safety Data Sheet
ICAO: International Commercial Air Organization
IATA: International Air Transport Association
LD₅₀: Deadly Dose 50 %
ICAO/ IATA-DGR: International Commercial Air Organization/ International Air Transport Association