

SAPPHIRE® Hi-Torque (with SUPS)

High performance, semi-synthetic gearbox fluids
Viscosity grades: ISO VG 100, 220, 320, 460, 680

Product Overview

The ROCOL® SAPPHIRE Hi-Torque range of semi-synthetic gearbox lubricants are supplied in viscosity grades: ISO VG 100, 220, 320, 460 & 680.

The majority of wear in a gearbox occurs on start up and the high performance SAPPHIRE Hi-Torque gear oils are reinforced with a unique Start Up Protection System (SUPS) that ensures the oil remains on the gear teeth even after prolonged shutdown. This ensures that the gears are immediately protected when the gearbox starts up without having to wait for the service lubricant to be picked up and splashed around inside the box.

The SAPPHIRE Hi-Torque range of tenacious, EP gear oils are exceptionally thermally stable and contain additives to boost performance and improve adhesion.

Features and Benefits

- SAPPHIRE Hi-Torque gear oils offers a wide temperature resistance of -20°C to +120°C.
- The range has outstanding EP performance with a 560 kg weld load.
- SAPPHIRE Hi-Torque gear oils have excellent thermal stability and contain a Unique SUPS Start Up Protection System for maximum protection.
- SAPPHIRE Hi-Torque oils are semi-synthetic which ensures compatibility with most types of mineral and synthetic oils.
- SAPPHIRE Hi-Torque gear oils provides a tenacious, low foaming film with excellent water wash-off resistance and corrosion protection.
- They have a blue dye for visibility and excellent stability resulting in extended relubrication intervals and a reduction in lubricant usage.

Directions for Storage and Use

- For optimum performance drain & flush prior to filling with ROCOL SAPPHIRE Hi-Torque gear oils.
- Additive packages are not required with SAPPHIRE Hi-Torque oils due to their inherent EP Performance.
- The storage temperature should be controlled between +1°C and +40°C.
- Shelf life is 3 years from date of manufacture.

Specifications

SAPPHIRE Hi-Torque gear oils can be used in gearboxes such as worm, spur, helical, bevel etc. and meet the requirements of:

- United States Steel 224
- American Gear Manufacturers Association (AGMA) 250.04.
- Deutsche Industrie Norm (DIN) 51517 part 3
- David Brown S1.53.101.

Pack Sizes

Product	Part Codes		
SAPPHIRE Hi-Torque	5L	20L	200L
100	21006	21005	21009
220	21016	21015	21019
320	21026	21025	21029
460	21036	21035	21039
680	21046	21045	21049

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High performance, semi-synthetic gearbox fluids

Viscosity grades: ISO VG 100, 220, 320, 460, 680

Typical Properties

Property	Test Method	Result		
Appearance	Visual	Blue liquid		
Base Type	N/A	Semi-synthetic		
Additives	N/A	SUPS		
Base Fluid Viscosity (IP 71) & Viscosity Index		40°C	100°C	VI
SAPPHIRE Hi-Torque 100	N/A	104cSt	12.9cSt	118
SAPPHIRE Hi-Torque 220	N/A	215cSt	21.9cSt	123
SAPPHIRE Hi-Torque 320	N/A	328cSt	27.2cSt	110
SAPPHIRE Hi-Torque 460	N/A	470cSt	35cSt	112
SAPPHIRE Hi-Torque 680	N/A	726cSt	49.5cSt	119
Temperature Range	N/A	-20°C to +120°C		
4-Ball Weld Load	IP 239 – ASTM D2596	560kg		

Values quoted above are typical and do not constitute a specification.

Safety Data Sheets

Safety data sheets are available for download from our website www.rocol.com or may be obtained from your usual ROCOL contact.

The information in this publication is based on our experience and reports from customers. There are many factors outside our control or knowledge which affect the use and performance of our products, for which reason it is given without responsibility.

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ROCOL A division of *ITW* Ltd



BS EN ISO 9001
 Certificate No. FM 12448



BS EN ISO 14001
 Certificate No. EMS 67596



OHSAS 18001
 Certificate No. OHS 78173



INVESTORS
 IN PEOPLE



SAFETY DATA SHEET
SAPPHIRE HI-TORQUE RANGE

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Compilation date: 24/09/2012

Revision No: 4

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: SAPPHIRE HI-TORQUE RANGE

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

Use of substance / mixture: Gear Lubricant

1.3. Details of the supplier of the safety data sheet

Company name: ROCOL

ROCOL House

Swillington

Leeds

West Yorkshire

LS26 8BS

ENGLAND

Tel: +44 (0) 113 232 2700

Fax: +44 (0) 113 232 2740

Email: customer-service@rocol.com

1.4. Emergency telephone number

Emergency tel: +44 (0) 113 232 2600

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CHIP: This product has no classification under CHIP.

2.2. Label elements

Label elements under CHIP:

Hazard symbols: No significant hazard.

2.3. Other hazards

PBT: This substance is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

[cont...]

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Hazardous ingredients:

LUBRICATING OILS (LESS THAN 3% DMSO EXTRACT)

EINECS	CAS	CHIP Classification	CLP Classification	Percent
278-012-2	74869-22-0	-: Substance with a Community workplace exposure limit.	-	50-70%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat.

Inhalation: No symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Use water spray to cool containers. Alcohol or polymer foam. Dry chemical powder.
Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

[cont...]

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6.4. Reference to other sections

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep away from direct sunlight.

Suitable packaging: Must only be kept in original packaging.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Hazardous ingredients:

LUBRICATING OILS (LESS THAN 3% DMSO EXTRACT)

Workplace exposure limits:

Respirable dust

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	5mg/m ³	10mg/m ³	-	-

8.2. Exposure controls

Respiratory protection: Respiratory protection not normally required.

Hand protection: Protective gloves.

Eye protection: Safety glasses with side-shields.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Blue

Odour: Barely perceptible odour

Evaporation rate: Negligible

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Insoluble

Viscosity: Non-viscous

Boiling point/range°C: >300

Melting point/range°C: < -20

Flammability limits %: lower: 1

upper: 6

Flash point°C: > 240

Autoflammability°C: > 200

Relative density: 0.85

[cont...]

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9.2. Other information

Other information: Not applicable.

Section 10: Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid: Heat. Direct sunlight.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong reducing agents.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values: Not applicable.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat.

Inhalation: No symptoms.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: Not applicable.

12.2. Persistence and degradability

Persistence and degradability: Only slightly biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Non-volatile. Insoluble in water. Readily absorbed into soil.

[cont...]

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12.5. Results of PBT and vPvB assessment

PBT identification: This substance is not identified as a PBT substance.

12.6. Other adverse effects

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal of packaging: Dispose of in a regulated landfill site or other method for hazardous or toxic wastes.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

Compiled in accordance with REACH.

Phrases used in s.2 and 3: None

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.