MATERIAL SAFETY DATA SHEET
TIMKEN CONSTRUCTION AND OFF-HIGHWAY GREASE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME TIMKEN CONSTRUCTION AND OFF-HIGHWAY GREASE

PART No. GR219

PRODUCT USE Lubricating Grease

SUPPLIER
The Timken Corporation
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Tel: (330) 438-3000

CONTACT PERSON David Pierman

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS No.	WEIGHT
LUBRICANT BASE OIL (PETROLEUM), HIGHLY REFINED**(2)	Mixture	60-80 %
CALCIUM SULFONATE COMPLEX THICKENER	Proprietary	10-30 %
*MOLYBDENUM SULFIDE (MoS2)	1317-33-5	3-7 %
*BENZENESULFONIC ACID, DODECYL-, CALCIUM SALT	26264-06-2	1-3 %

* This chemical(s) is hazardous according to OSHA/WHIMIS criteria

COMPOSITION COMMENTS

Refer to section eight for exposure limits on ingredients.
Chemical ingredients not regulated by OSHA, SARA, state or federal agencies are treated confidentially.
**(2) The base oil for this product can be a mixture of any of the following highly refined petroleum streams:
CAS 64741-88-4; CAS 64741-89-5; CAS 64741-96-4; CAS 64741-97-5; CAS 64742-01-4; CAS 64742-52-5; CAS 64742-53-6; CAS 64742-54-7; CAS 64742-55-8; CAS 64742-56-9; CAS 64742-57-0; CAS 64742-62-7; CAS 64742-63-8; CAS 64742-65-0; CAS 72623-83-7; CAS 72623-85-9; CAS 72623-86-0; CAS 72623-87-1.
Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including solvent extraction, hydrotreating, and dewaxing to remove aromatics and improve performance characteristics. None of the oils used are listed as a carcinogen by NTP, IARC, or OSHA.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	Not regarded as a health hazard under current legislation.
INHALATION	Inhalation hazard at room temperature is unlikely due to the low volatility of this product. Heating can generate vapors that may cause respiratory irritation, nausea and headaches.
INGESTION	May cause stomach pain or vomiting.
SKIN	Prolonged or repeated contact leads to drying of skin.
EYES	May be slightly irritating to eyes.
SENSITIZATION	No known information.
CARCINOGENICITY	IARC: Not listed as a Group 1, 2A, or 2B agent. OSHA: Not regulated. NTP: Not listed.
TERATOGENICITY	No known information.
MUTAGENICITY	No known information.
HEALTH WARNINGS	INHALATION. Heating can generate vapors that may cause respiratory irritation, nausea and headaches. Inhalation hazard at room temperature is unlikely due to the low volatility of this product. SKIN CONTACT. Repeated or prolonged contact can result in drying of the skin. EYE CONTACT. Slightly irritating. INGESTION. Can cause stomach ache and vomiting.
ROUTE OF ENTRY	Inhalation. Skin and/or eye contact. Ingestion.

4. FIRST AID MEASURES

INHALATION	Move the exposed person to fresh air at once. For breathing difficulties oxygen may be necessary. Get medical attention if any discomfort continues.
EYES	Rinse with water. Contact physician if discomfort continues.
SKIN	Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues. INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
INGESTION	DO NOT INDUCE VOMITING! Get medical attention immediately!

5. FIRE FIGHTING MEASURES

FLASH POINT (°C)	246 (475°F) Cd OC (Cleveland open cup).
FLAMMABILITY LIMIT - LOWER(%)	N/D

FLAMMABILITY LIMIT - UPPER(%)	N/D
EXTINGUISHING MEDIA	Water spray, fog or mist. Foam. Carbon dioxide (CO2). Dry chemicals, sand, dolomite etc.
SPECIAL FIRE FIGHTING PROCEDURES	Use water to keep fire exposed containers cool and disperse vapors. Water spray may be used to flush spills away from exposures and dilute spills to non-flammable mixtures. Avoid water in straight hose stream; will scatter and spread fire. Keep run-off water out of sewers and water sources. Dike for water control.
UNUSUAL FIRE & EXPLOSION HAZARDS	Volume and pressure increases strongly when heated. Risk of container explosion in fire.
HAZARDOUS COMBUSTION PRODUCTS	Acrid smoke/fumes. Oxides of: Carbon. Sulfur.
PROTECTIVE MEASURES IN CASE OF FIRE	Self-contained breathing equipment and chemical resistant clothing recommended.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	Minimize skin contact.
PRECAUTIONS TO PROTECT THE ENVIRONMENT	Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses or extensive land areas. Assure conformity with applicable government regulations.
SPILL CLEAN-UP PROCEDURES	Provide good ventilation. Use appropriate protective clothing. Carefully collect spilled material in closed containers and leave for disposal according to local regulations. Do not let washing down water contaminate ponds or waterways. Rinse area with water.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS	Keep away from heat, sparks and open flame. Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Containers should be kept tightly closed. Avoid spilling, skin and eye contact. Eye wash and emergency shower must be available at the work place.
STORAGE PRECAUTIONS	Keep away from heat, sparks and open flame. Store separated from: Acids. Oxidizing materials.
STORAGE CRITERIA	Chemical storage.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

COMPONENT	STD	TWA	STEL	TWA	STEL
LUBRICANT BASE OIL (PETROLEUM), HIGHLY REFINED**(2)	OSHA			5 mg/m3 **(1)	
	ACGIH			5 mg/m3 **(1)	10 mg/m3 **(1)
MOLYBDENUM SULFIDE (MoS2)	OSHA			N/E	
	ACGIH	3 mg/m3 (resp) as Mo		10 mg/m3 (ihl) as Mo	

INGREDIENT COMMENTS **(1) For respirable oil mist.

PROTECTIVE EQUIPMENT

ENGINEERING CONTROLS Use engineering controls to reduce air contamination to permissible exposure level.

VENTILATION No specific ventilation requirements noted, but forced ventilation may still be required if air contamination exceeds acceptable level.

RESPIRATORS No specific recommendation made, but respiratory protection may still be required under exceptional circumstances when excessive air contamination exists.

PROTECTIVE GLOVES Chemical resistant gloves required for prolonged or repeated contact. Use protective gloves made of: Neoprene, nitrile, polyethylene or PVC.

EYE PROTECTION Use eye protection.

PROTECTIVE CLOTHING Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES Wash at the end of each work shift and before eating, smoking and using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE	Grease.		
COLOR	Grey.		
ODOR	Mild (or faint). Petroleum.		
SOLUBILITY DESCRIPTION	Insoluble in water.		
DENSITY	0.96	**Temperature (°C)**	15.6 (60°F)
VAPOR DENSITY (air=1)	> 5		
VAPOR PRESSURE	< 0.01 mmHg	**Temperature (°C)**	20 (68°F)
EVAPORATION RATE	< 1	**Reference**	BuAc=1
pH-VALUE, CONC. SOLUTION	N/A		

10. STABILITY AND REACTIVITY

STABILITY Normally stable.

CONDITIONS TO AVOID Avoid contact with acids and oxidizing substances.

HAZARDOUS POLYMERIZATION Will not polymerize.

HAZARDOUS DECOMPOSITION PRODUCTS Oxides of: Carbon. Sulfur.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION No experimental toxicological data on the preparation as such is available.

COMPONENT **LUBRICANT BASE OIL (PETROLEUM), HIGHLY REFINED**(2)**

TOXICOLOGICAL DATA Carcinogenicity. IP 346: <3%
TOXIC DOSE - LD 50 N/A.
TOXIC CONC. - LC 50 N/A.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION No data on possible environmental effects have been found.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS Spilled material, unused contents and empty containers must be disposed of in accordance with local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT HAZARD CLASS Not regulated.

IDENTIFICATION No. N/A

TDGR CLASS Not Regulated. Non réglementé.

SEA TRANSPORT NOTES Not regulated per IMDG.

AIR TRANSPORT NOTES Not regulated per IATA.

15. REGULATORY INFORMATION

US FEDERAL REGULATIONS: COMPONENT	SARA 302	CERCLA	SARA 313
CALCIUM SULFONATE COMPLEX THICKENER	No	No	No
MOLYBDENUM SULFIDE (MoS2)	No	No	No
BENZENESULFONIC ACID, DODECYL-, CALCIUM SALT	No	1 000 lbs	No
LUBRICANT BASE OIL (PETROLEUM), HIGHLY REFINED**(2)	No	No	No

SARA HAZARD CATEGORIES None

US STATE REGULATIONS: BY COMPONENT	**CA**	**FL**	**MA**	**MN**	**NJ**	**PA**	**RI**
BENZENESULFONIC ACID, DODECYL-, CALCIUM SALT						EH	

INVENTORIES: COMPONENT	**CAN**	**US**	**EU**	**AUS**	**JAP**	**KOR**	**CHN**	**PHLP**
LUBRICANT BASE OIL (PETROLEUM), HIGHLY REFINED**(2)	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
CALCIUM SULFONATE COMPLEX THICKENER	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
MOLYBDENUM SULFIDE (MoS2)	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
BENZENESULFONIC ACID, DODECYL-, CALCIUM SALT	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes

16. OTHER INFORMATION

NFPA-HMIS: HEALTH	Irritation, minor residual injury (1) - HMIS/NFPA
NFPA-HMIS: FLAMMABILITY	Burns only if pre-heated (1) - HMIS/NFPA
NFPA-HMIS: REACTIVITY	Normally Stable (0) - HMIS/NFPA
HMIS PERS. PROTECT. INDEX	B - Safety Eyewear and Gloves
PREPARED BY	James W. Hermann
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DISCLAIMER	While the information and recommendations set forth herein are believed to be accurate as of the date thereof, The Timken Corporation makes no warranty with respect thereto and disclaims all liability from reliance therein.

*** Information revised since previous MSDS version**