MATERIAL SAFETY DATA SHEET
TIMKEN SYNTHETIC INDUSTRIAL GREASE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME TIMKEN SYNTHETIC INDUSTRIAL GREASE

PART No. GR232

PRODUCT USE Lubricating Grease

SUPPLIER
The Timken Corporation
1835 Dueber Ave.
P.O. Box 6930
Canton,OH 44706-0930 USA
Tel: (330) 438-3000

CONTACT PERSON David Pierman

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS No.	WEIGHT
1-DECENE, HOMOPOLYMER, HYDROGENATED (COMMON NAME: POLYALPHAOLEFINS)	68037-01-4	50-70 %
LITHIUM COMPLEX THICKENER	Proprietary	10-30 %
1-DODECENE, POLYMER WITH 1-OCTENE, HYDROGENATED	163149-29-9	5-10 %
FATTY ACIDS, C18-UNSATD., DIMERS, POLYMERS W/ 2-ETHYLHEXANOL & NEOPENTYL GLYCOL	68552-19-2	5-10 %
DISTILLATES, PETROLEUM, HYDROTREATED HEAVY NAPHTHENIC	64742-52-5	1-5 %
*ANTIMONY DIALKYLDITHIOCARBAMATE	Proprietary	1-2 %
*ZINC, BIS(DIPENTYLCARBAMODITHIOATO-S,S")-, (T-4) -	15337-18-5	0.1-1 %

* 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.

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.

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)	224 (435°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
DISTILLATES, PETROLEUM, HYDROTREATED HEAVY NAPHTHENIC	OSHA			5 mg/m3 **(1)	
	ACGIH			5 mg/m3 **(1)	10 mg/m3 **(1)
ANTIMONY DIALKYLDITHIOCARBAMATE	OSHA			0.5 mg/m3 as Sb	
	ACGIH			0.5 mg/m3 as Sb	

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	Red.		
ODOR	Mild (or faint).		
SOLUBILITY DESCRIPTION	Insoluble in water.		
BOILING POINT (°C, range)	N/D	**Pressure**	
MELT./FREEZ. POINT (°C, interval)	N/D		
DENSITY	0.86 - 0.90	**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, DILUTED SOLUTION	N/D	**Concentration %M**	

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.

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
1-DECENE, HOMOPOLYMER, HYDROGENATED (COMMON NAME: POLYALPHAOLEFINS)	No	No	No
LITHIUM COMPLEX THICKENER	No	No	No
1-DODECENE, POLYMER WITH 1-OCTENE, HYDROGENATED	No	No	No
FATTY ACIDS, C18-UNSATD., DIMERS, POLYMERS W/ 2-ETHYLHEXANOL & NEOPENTYL GLYCOL	No	No	No
DISTILLATES, PETROLEUM, HYDROTREATED HEAVY NAPHTHENIC	No	No	No
ANTIMONY DIALKYLDITHIOCARBAMATE	No	***	N010 - Sb
ZINC, BIS(DIPENTYLCARBAMODITHIOATO-S,S")-, (T-4) -	No	***	N982 - Zn

*** Indicates that no RQ is assigned to this generic or broad class, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985). Values in Section 313 column represent Category Codes for reporting under Section 313.

SARA HAZARD CATEGORIES None

US STATE REGULATIONS: BY COMPONENT	CA	FL	MA	MN	NJ	PA	RI
ANTIMONY DIALKYLDITHIOCARBAMATE				Yes		EH	
ZINC, BIS(DIPENTYLCARBAMODITHIOATO-S,S")-, (T-4) -						EH	

INVENTORIES: COMPONENT	CAN	US	EU	AUS	JAP	KOR	CHN	PHLP
1-DECENE, HOMOPOLYMER, HYDROGENATED (COMMON NAME: POLYALPHAOLEFINS)	DSL	Yes	Polymer	Yes	Yes	Yes	Yes	Yes
1-DODECENE, POLYMER WITH 1-OCTENE, HYDROGENATED	DSL	Yes	Polymer		Yes			

FATTY ACIDS, C18-UNSATD., DIMERS, POLYMERS W/ 2-ETHYLHEXANOL & NEOPENTYL GLYCOL	DSL	Yes	Polymer	Yes		Yes	Yes	
DISTILLATES, PETROLEUM, HYDROTREATED HEAVY NAPHTHENIC	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
ANTIMONY DIALKYLDITHIOCARBAMATE	NPRI	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
ZINC, BIS(DIPENTYLCARBAMODITHIOATO-S,S")-, (T-4) -	NPRI	Yes	EINECS	Yes	Yes	Yes	Yes	Yes
LITHIUM COMPLEX THICKENER	DSL	Yes	EINECS					

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 PERSONAL PROTECTION INDEX	B - Safety Eyewear and Gloves
PREPARED BY	James W. Hermann
DATE	2005-04-08
PRINTING DATE:	2005-04-08
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.