TOP TEC 4200 5W-30, 5 L

Liqui Moly GmbH

Chemwatch Hazard Alert Code: **2**

Chemwatch: **48-0007**
Version No: **2.1.1.1**
Safety Data Sheet

Issue Date: **03/03/2015**
Print Date: **12/03/2015**
Initial Date: **Not Available**
S.GHS.CAN.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	TOP TEC 4200 5W-30, 5 L
Synonyms	Item No. 2011
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturer's directions.

Details of the manufacturer/importer

Registered company name	Liqui Moly GmbH
Address	Jerg-Wieland-Strasse 4 Ulm D-89081 Germany
Telephone	+49 731 1420 0
Fax	+49 731 1420 82
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	1		
Toxicity	0		
Body Contact	0		
Reactivity	1		
Chronic	2		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

CANADIAN WHMIS SYMBOLS

GHS Classification	Chronic Aquatic Hazard Category 3

Label elements

GHS label elements	Not Applicable

SIGNAL WORD	**NOT APPLICABLE**

Hazard statement(s)

H412	Harmful to aquatic life with long lasting effects

Precautionary statement(s) Prevention

P273	Avoid release to the environment.

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Continued...

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
72623-87-1.	20-40	lubricating oils, petroleum C20-50, hydrotreated neutral
64742-54-7.	1-<10	paraffinic distillate, heavy, hydrotreated (severe)
		base oil as
Not avail	1-<10	mineral oil
2215-35-2	0.1-<1	zinc bis(1,3-dimethylbutyl)dithiophosphate
84605-29-8	0.1-<1	zinc O,O-bis(1,3-dimethylbutyl & isopropyl)dithiophosphate
128-39-2	0.1-<0.25	2,6-di-tert-butylphenol

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with eyes: ▸ Wash out immediately with water. ▸ If irritation continues, seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ Immediately give a glass of water. ▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

- Heavy and persistent skin contamination over many years may lead to dysplastic changes. Pre-existing skin disorders may be aggravated by exposure to this product.
- In general, emesis induction is unnecessary with high viscosity, low volatility products, i.e. most oils and greases.
- High pressure accidental injection through the skin should be assessed for possible incision, irrigation and/or debridement.

NOTE: Injuries may not seem serious at first, but within a few hours tissue may become swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Product may be forced through considerable distances along tissue planes.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

	▸ Foam. ▸ Dry chemical powder. ▸ BCF (where regulations permit). ▸ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Use water delivered as a fine spray to control fire and cool adjacent area.
Fire/Explosion Hazard	▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. ▸ Heating may cause expansion or decomposition leading to violent rupture of containers. ▸ On combustion, may emit toxic fumes of carbon monoxide (CO).

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	Slippery when spilt. ▸ Remove all ignition sources. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes.

Continued...

Major Spills	Slippery when spilt. Moderate hazard. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard.
	Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▸ Electrostatic discharge may be generated during pumping - this may result in fire. ▸ Ensure electrical continuity by bonding and grounding (earthing) all equipment. ▸ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<=1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). ▸ Avoid splash filling.
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ No smoking, naked lights or ignition sources. ▸ Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Metal can or drum ▸ Packaging as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	**CARE**: Water in contact with heated material may cause foaming or a steam explosion with possible severe burns from wide scattering of hot material. Resultant overflow of containers may result in fire. ▸ Avoid reaction with oxidising agents

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist, mineral	5 mg/m3 / --- ppm	10 mg/m3 / --- ppm	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances	lubricating oils, petroleum C20-50, hydrotreated neutral	Mineral oils, untreated and mildly treated	Not Available	Not Available	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits (English)	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil Mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist - mineral	5 mg/m3	10 mg/m3	Not Available	TLV Basis: lung. As sampled by method that does not collect vapor.
Canada - Prince Edward Island Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Mineral oil, excluding metal working fluids Pure, highly and severely refined / Mineral oil, excluding metal working fluids Poorly and mildly refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	lubricating oils, petroleum C20-50, hydrotreated neutral	Mineral oil (mist) / Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Alberta Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist - mineral, mildly refined / Oil mist - mineral, severely refined	0.2 mg/m3 mg/m3 / 1 mg/m3 mg/m3	Not Available	Not Available	Not Available
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3 / --- ppm	10 mg/m3 / --- ppm	Not Available	Not Available

Continued...

Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances	paraffinic distillate, heavy, hydrotreated (severe)	Mineral oils, untreated and mildly treated	Not Available	Not Available	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits (English)	paraffinic distillate, heavy, hydrotreated (severe)	Oil Mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist - mineral	5 mg/m3	10 mg/m3	Not Available	TLV Basis: lung. As sampled by method that does not collect vapor.
Canada - Prince Edward Island Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Mineral oil, excluding metal working fluids Pure, highly and severely refined / Mineral oil, excluding metal working fluids Poorly and mildly refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	paraffinic distillate, heavy, hydrotreated (severe)	Mineral oil (mist) / Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Alberta Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist - mineral, mildly refined / Oil mist - mineral, severely refined	0.2 mg/m3 mg/m3 / 1 mg/m3 mg/m3	Not Available	Not Available	Not Available
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	mineral oil	Oil mist, mineral	5 mg/m3 / --- ppm	10 mg/m3 / --- ppm	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances	mineral oil	Mineral oils, untreated and mildly treated	Not Available	Not Available	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits (English)	mineral oil	Oil Mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	mineral oil	Oil mist - mineral	5 mg/m3	10 mg/m3	Not Available	TLV Basis: lung. As sampled by method that does not collect vapor.
Canada - Prince Edward Island Occupational Exposure Limits	mineral oil	Mineral oil, excluding metal working fluids Pure, highly and severely refined / Mineral oil, excluding metal working fluids Poorly and mildly refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	mineral oil	Mineral oil (mist) / Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Alberta Occupational Exposure Limits	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	mineral oil	Oil mist - mineral, mildly refined / Oil mist - mineral, severely refined	0.2 mg/m3 mg/m3 / 1 mg/m3 mg/m3	Not Available	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	2,6-di-tert-butylphenol	Particles (Insoluble or Poorly Soluble) Not Otherwise Specified: Inhalable fraction++ / Particles (Insoluble or Poorly Soluble) Not Otherwise Specified: Respirable fraction++	10 mg/m3 / 3 mg/m3	20 mg/m3 / 6 mg/m3	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits (English)	2,6-di-tert-butylphenol	Welding fumes (total particulate)	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	2,6-di-tert-butylphenol	Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles / Particles (Insoluble or Poorly Soluble) [NOS] Respirable particles	10 mg/m3 / 3 mg/m3	Not Available	Not Available	See Appendix B current TLV/BEI Book
Canada - Prince Edward Island Occupational Exposure Limits	2,6-di-tert-butylphenol	Particles (insoluble or poorly soluble) not otherwise specified	Not Available	Not Available	Not Available	See Appendix B
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	2,6-di-tert-butylphenol	Dust, inert or nuisance particulates / Nuisance particulates / Particulates Not Otherwise Classified (PNOC)	10 mg/m3	Not Available	Not Available	Not Available

Continued...

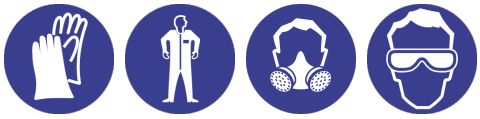
Canada - Alberta Occupational Exposure Limits	2,6-di-tert-butylphenol	Particulate Not Otherwise Regulated - Total / Particulate Not Otherwise Regulated - Respirable	10 mg/m3 / 3 mg/m3	Not Available	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	2,6-di-tert-butylphenol	Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC)	10 mg/m3 (N) mg/m3	Not Available	Not Available	(N) - the 8-hour TWA listed in the Table is for the total dust. The substance also has an 8-hour TWA of 3 mg/m3 for the respirable fraction.
Canada - Ontario Occupational Exposure Limits	2,6-di-tert-butylphenol	Particles (Insoluble or Poorly Soluble) Not Otherwise Specified (PNOS)	10, 3 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
paraffinic distillate, heavy, hydrotreated (severe)	Hydrotreated (mild & severe) heavy paraffinic distillates	45 mg/m3	500 mg/m3	3000 mg/m3
2,6-di-tert-butylphenol	Particulate material (PNOS)	30 mg/m3	330 mg/m3	2000 mg/m3

Ingredient	Original IDLH	Revised IDLH
lubricating oils, petroleum C20-50, hydrotreated neutral	Not Available	Not Available
paraffinic distillate, heavy, hydrotreated (severe)	Not Available	Not Available
mineral oil	Not Available	Not Available
zinc bis(1,3-dimethylbutyl)dithiophosphate	Not Available	Not Available
zinc O,O-bis(1,3-dimethylbutyl & isopropyl)dithiophosphate	Not Available	Not Available
2,6-di-tert-butylphenol	Not Available	Not Available

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
Personal protection	
Eye and face protection	▸ Safety glasses with side shields ▸ Chemical goggles. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.
Skin protection	See Hand protection below
Hands/feet protection	The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Suitability and durability of glove type is dependent on usage.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C. apron. ▸ Barrier cream.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
TOP TEC 4200 5W-30, 5 L Not Available

Material	CPI

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.
Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-

Continued...

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Brown colour liquid with characteristic odour; not miscible with water.

Physical state	Liquid	**Relative density (Water = 1)**	0.855
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	-48	**Viscosity (cSt)**	71
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	230	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water (g/L)	Immiscible	**pH as a solution**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation hazard is increased at higher temperatures. Inhalation of oil droplets or aerosols may cause discomfort and may produce chemical inflammation of the lungs.
Ingestion	The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives . Open cuts, abraded or irritated skin should not be exposed to this material The material may accentuate any pre-existing dermatitis condition Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Oil may contact the skin or be inhaled. Extended exposure can lead to eczema, inflammation of hair follicles, pigmentation of the face and warts on the soles of the feet.

	TOXICITY	IRRITATION
TOP TEC 4200 5W-30, 5 L	Not Available	Not Available

Continued...

lubricating oils, petroleum C20-50, hydrotreated neutral	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: >3.9 mg/l4 h[1]	
	Inhalation (rat) LC50: >4.7 mg/l4 h[1]	
	Inhalation (rat) LC50: >5 mg/l4 h[1]	
	Inhalation (rat) LC50: >5.2 mg/l4 h[1]	
	Inhalation (rat) LC50: >5.3 mg/l4 h[1]	
	Inhalation (rat) LC50: 10.5 mg/l4 h[1]	
	Inhalation (rat) LC50: 5.7 mg/l4 h[1]	
	Inhalation (rat) LC50: 9.6 mg/l4 h[1]	
	Oral (rat) LD50: >2000 mg/kg[1]	
paraffinic distillate, heavy, hydrotreated (severe)	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: >3.9 mg/l4 h[1]	
	Inhalation (rat) LC50: >4.7 mg/l4 h[1]	
	Inhalation (rat) LC50: >5 mg/l4 h[1]	
	Inhalation (rat) LC50: >5.2 mg/l4 h[1]	
	Inhalation (rat) LC50: >5.3 mg/l4 h[1]	
	Inhalation (rat) LC50: 10.5 mg/l4 h[1]	
	Inhalation (rat) LC50: 5.7 mg/l4 h[1]	
	Inhalation (rat) LC50: 9.6 mg/l4 h[1]	
	Oral (rat) LD50: >2000 mg/kg[1]	
mineral oil	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
zinc bis(1,3-dimethylbutyl)dithiophosphate	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
zinc O,O-bis(1,3-dimethylbutyl & isopropyl)dithiophosphate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2002 mg/kg[1]	Not Available
	Oral (rat) LD50: 3100 mg/kg[1]	
2,6-di-tert-butylphenol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >10000 mg/kg[2]	Not Available
	Oral (rat) LD50: 1320 mg/kg[2]	
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's msds Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

MINERAL OIL	Toxicity and Irritation data for petroleum-based mineral oils are related to chemical components and vary as does the composition and source of the original crude. A small but definite risk of occupational skin cancer occurs in workers exposed to persistent skin contamination by oils over a period of years. This risk has been attributed to the presence of certain polycyclic aromatic hydrocarbons (PAH) (typified by benz[a]pyrene). Petroleum oils which are solvent refined/extracted or severely hydrotreated, contain very low concentrations of both.
2,6-DI-TERT-BUTYLPHENOL	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.
LUBRICATING OILS, PETROLEUM C20-50, HYDROTREATED NEUTRAL, PARAFFINIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE)	The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since: ▸ The adverse effects of these materials are associated with undesirable components, and ▸ The levels of the undesirable components are inversely related to the degree of processing; ▸ Distillate base oils receiving the same degree or extent of processing will have similar toxicities; ▸ The potential toxicity of *residual base oils* is independent of the degree of processing the oil receives. ▸ The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential carcinogenic and mutagenic activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components.

Continued...

ZINC BIS(1,3-DIMETHYLBUTYL)DITHIOPHOSPHATE, ZINC O,O-BIS(1,3-DIMETHYLBUTYL & ISOPROPYL)DITHIOPHOSPHATE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Dithiophosphate alkyl esters is corrosive and toxic to the tissues on skin or oral exposure depending on its concentration. Symptoms included diarrhoea, skin and gastrointestinal irritation, lethargy, reduced food intake, staining about the nose and eye; occasionally, there was drooping of the eyelid, hair standing up, inco-ordination and salivation.

Acute Toxicity	⊘	**Carcinogenicity**	⊘
Skin Irritation/Corrosion	⊘	**Reproductivity**	⊘
Serious Eye Damage/Irritation	⊘	**STOT - Single Exposure**	⊘
Respiratory or Skin sensitisation	⊘	**STOT - Repeated Exposure**	⊘
Mutagenicity	⊘	**Aspiration Hazard**	⊘

Legend: ✔ *– Data required to make classification available*
✘ *– Data available but does not fill the criteria for classification*
⊘ *– Data Not Available to make classification*

CMR STATUS

Not Applicable

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Harmful to aquatic organisms.
May cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2,6-di-tert-butylphenol	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
2,6-di-tert-butylphenol	HIGH (LogKOW = 4.92)

Mobility in soil

Ingredient	Mobility
2,6-di-tert-butylphenol	LOW (KOC = 14220)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO

Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	2,6-di-tert-butylphenol	X

SECTION 15 REGULATORY INFORMATION

Continued...

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

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

lubricating oils, petroleum C20-50, hydrotreated neutral(72623-87-1.) is found on the following regulatory lists	"Canada Domestic Substances List (DSL)","Canada - British Columbia Occupational Exposure Limits","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada Categorization decisions for all DSL substances","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (French)","Canada - Alberta Occupational Exposure Limits"
paraffinic distillate, heavy, hydrotreated (severe)(64742-54-7.) is found on the following regulatory lists	"Canada Domestic Substances List (DSL)","Canada - British Columbia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada Categorization decisions for all DSL substances","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (French)","Canada - Alberta Occupational Exposure Limits"
mineral oil(Not avail) is found on the following regulatory lists	"Canada - British Columbia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (French)","Canada - Alberta Occupational Exposure Limits"
zinc bis(1,3-dimethylbutyl)dithiophosphate(2215-35-2) is found on the following regulatory lists	"Canada Domestic Substances List (DSL)","Canada Categorization decisions for all DSL substances"
zinc O,O-bis(1,3-dimethylbutyl & isopropyl)dithiophosphate(84605-29-8) is found on the following regulatory lists	"Canada Domestic Substances List (DSL)","Canada Categorization decisions for all DSL substances"
2,6-di-tert-butylphenol(128-39-2) is found on the following regulatory lists	"Canada Domestic Substances List (DSL)","Canada - British Columbia Occupational Exposure Limits","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Ontario Occupational Exposure Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada Categorization decisions for all DSL substances","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (French)","Canada - Alberta Occupational Exposure Limits"

SECTION 16 OTHER INFORMATION

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

end of SDS