

20446, 20448, 20345, 22150, 22151, 22175 TOP TEC 4600 5W-30 1L, 5L, 20L, 60L, 205L, 1000L Liqui Moly GmbH

Chemwatch Hazard Alert Code: 1

Chemwatch: 50-30529

Version No: 4.1.1.1

Safety Data Sheet according to WHMIS 2015 requirements

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S.GHS.CAN.EN

SECTION 1 Identification

Product Identifier

Product name	20446, 20448, 20345, 22150, 22151, 22175 TOP TEC 4600 5W-30 1L, 5L, 20L, 60L, 205L, 1000L
Synonyms	Not Available
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Use according to manufacturer's directions.
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

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	http://www.liqui-moly.com/
Email	Not Available

Emergency phone number

Association / Organisation	INFOTRAC
Emergency telephone numbers	+1800 535 5053 (US, Canada & Mexico)
Other emergency telephone numbers	+1 352 323 3500 (International)

SECTION 2 Hazard(s) identification

Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Canadian WHMIS Symbols

Classification	Not Applicable
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Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

Hazard statement(s)

Not Applicable

Physical and Health hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 Composition / information on ingredients**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
72623-87-1.	>60	<u>lubricating oils, petroleum C20-50, hydrotreated neutral</u>
64741-88-4.	1-10	<u>paraffinic distillate, heavy, solvent-refined (severe)</u>
72623-86-0.	<2	<u>lubricating oils, petroleum C15-30 hydrotreated neutral</u>
64742-54-7.	<2	<u>paraffinic distillate, heavy, hydrotreated (severe)</u>
36878-20-3	<2	<u>nonylated diphenylamines</u>

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 Fire-fighting 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
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Special protective equipment and precautions for fire-fighters

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). Combustion products include: carbon dioxide (CO₂) phosphorus oxides (PO_x) sulfur oxides (SO_x) other pyrolysis products typical of burning organic material. CARE: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.

SECTION 6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

See section 8

Environmental precautions

See section 12

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Methods and material for containment and cleaning up

Minor Spills	Slippery when spilt. - Remove all ignition sources. - Clean up all spills immediately. - Avoid breathing vapours and contact with skin and eyes. - Control personal contact with the substance, by using protective equipment.
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. - Wear breathing apparatus plus protective gloves.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

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. - Avoid all personal contact, including inhalation. - Wear protective clothing when risk of exposure occurs. - Use in a well-ventilated area. - Prevent concentration in hollows and sumps.
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	Avoid contamination of water, foodstuffs, feed or seed. 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

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/m ³	10 mg/m ³	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist - mineral	5 mg/m ³	10 mg/m ³	Not Available	TLV Basis: lung. As sampled by method that does not collect vapor.
Canada - Alberta Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist, mineral	5 mg/m ³	10 mg/m ³	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/m ³	10 mg/m ³	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Not Available	5 mg/m ³	Not Available	Not Available	TLV® Basis: URT irr
Canada - British Columbia Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist - mineral, severely refined	1 mg/m ³	Not Available	Not Available	Not Available
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	5 mg/m ³	Not Available	Not Available	TLV® Basis: URT irr
Canada - Northwest Territories Occupational Exposure Limits	lubricating oils, petroleum C20-50, hydrotreated neutral	Oil mist, mineral	5 mg/m ³	10 mg/m ³	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	lubricating oils, petroleum C20-50, hydrotreated neutral	Mineral oil (mist)	5 mg/m ³	10 mg/m ³	Not Available	Not Available

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20446, 20448, 20345, 22150, 22151, 22175 TOP TEC 4600 5W-30 1L, 5L, 20L, 60L, 205L, 1000L

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	lubricating oils, petroleum C15-30 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 - Alberta Occupational Exposure Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Not Available	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - British Columbia Occupational Exposure Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist - mineral, severely refined	1 mg/m3	Not Available	Not Available	Not Available
Canada - Prince Edward Island Occupational Exposure Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Mineral oil, excluding metal working fluids - Pure, highly and severely refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Northwest Territories Occupational Exposure Limits	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	lubricating oils, petroleum C15-30 hydrotreated neutral	Mineral oil (mist)	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	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 - Alberta Occupational Exposure 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 - Contamination Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Not Available	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - British Columbia Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist - mineral, severely refined	1 mg/m3	Not Available	Not Available	Not Available
Canada - Prince Edward Island Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Mineral oil, excluding metal working fluids - Pure, highly and severely refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Northwest Territories Occupational Exposure Limits	paraffinic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	paraffinic distillate, heavy, hydrotreated (severe)	Mineral oil (mist)	5 mg/m3	10 mg/m3	Not Available	Not Available

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
lubricating oils, petroleum C20-50, hydrotreated neutral	Mineral oil, heavy or light; (paraffin oil; Deobase, deodorized; heavy paraffinic; heavy naphthenic); distillates; includes 64741-53-3, 64741-88-4, 8042-47-5, 8012-95-1; 64742-54-7	140 mg/m3	1,500 mg/m3	8,900 mg/m3
lubricating oils, petroleum C15-30 hydrotreated neutral	Mineral oil, heavy or light; (paraffin oil; Deobase, deodorized; heavy paraffinic; heavy naphthenic); distillates; includes 64741-53-3, 64741-88-4, 8042-47-5, 8012-95-1; 64742-54-7	140 mg/m3	1,500 mg/m3	8,900 mg/m3
paraffinic distillate, heavy, hydrotreated (severe)	Mineral oil, heavy or light; (paraffin oil; Deobase, deodorized; heavy paraffinic; heavy naphthenic); distillates; includes 64741-53-3, 64741-88-4, 8042-47-5, 8012-95-1; 64742-54-7	140 mg/m3	1,500 mg/m3	8,900 mg/m3

Ingredient	Original IDLH	Revised IDLH
lubricating oils, petroleum C20-50, hydrotreated neutral	2,500 mg/m3	Not Available
paraffinic distillate, heavy, solvent-refined (severe)	Not Available	Not Available
lubricating oils, petroleum C15-30 hydrotreated neutral	2,500 mg/m3	Not Available
paraffinic distillate, heavy, hydrotreated (severe)	2,500 mg/m3	Not Available
nonylated diphenylamines	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.
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	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	Wear general protective gloves, eg. light weight rubber gloves. 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. Personal hygiene is a key element of effective hand care.
Body protection	See Other protection below
Other protection	No special equipment needed when handling small quantities. OTHERWISE: ▶ Overalls. ▶ Barrier cream. ▶ Eyewash unit.

Respiratory protection

Type AK-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	AK-AUS P2	-	AK-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AK-AUS / Class 1 P2	-
up to 100 x ES	-	AK-2 P2	AK-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)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Brown liquid with characteristic odour; not miscible with water.		
Physical state	Liquid	Relative density (Water = 1)	0.870
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)	-39	Viscosity (cSt)	71.4 @ 40C, 11.95 @ 100C
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	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

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SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and 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. Not normally a hazard due to non-volatile nature of product 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 able to be mixed 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	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course. 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.

20446, 20448, 20345, 22150, 22151, 22175 TOP TEC 4600 5W-30 1L, 5L, 20L, 60L, 205L, 1000L	TOXICITY	IRRITATION
	Not Available	Not Available
lubricating oils, petroleum C20-50, hydrotreated neutral	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[1]	Eye: no adverse effect observed (not irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]
paraffinic distillate, heavy, solvent-refined (severe)	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]
lubricating oils, petroleum C15-30 hydrotreated neutral	TOXICITY	IRRITATION
	>5000 mg/kg ^[1] Oral (rat) LD50: >5000 mg/kg ^[1]	Eye: no adverse effect observed (not irritating) ^[1] Skin: adverse effect observed (irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]
paraffinic distillate, heavy, hydrotreated (severe)	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[2] Oral (rat) LD50: >5000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]
nonylated diphenylamines	TOXICITY	IRRITATION
	Not Available	Eye: no adverse effect observed (not irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

PARAFFINIC DISTILLATE, HEAVY, SOLVENT-REFINED (SEVERE)	No significant acute toxicological data identified in literature search.
NONYLATED DIPHENYLAMINES	Heating of substituted diphenylamines may generate vapours which can irritate the eyes and airways. Drying of skin and mucous membranes leading to irritation may occur with prolonged or repeated contact. Overexposure may cause skin and airway irritation with dizziness and flu-like symptoms. All show a slight to very low order of toxicity following oral or topical administration.
LUBRICATING OILS, PETROLEUM C20-50, HYDROTREATED NEUTRAL &	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

PARAFFINIC DISTILLATE, HEAVY, SOLVENT-REFINED (SEVERE) & LUBRICATING OILS, PETROLEUM C15-30 HYDROTREATED NEUTRAL & PARAFFINIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE)	- 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 cancer-causing and mutation-causing activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components. In comparison to unrefined and mildly refined base oils, the highly and severely refined distillate base oils have a smaller range of hydrocarbon molecules and have demonstrated very low mammalian toxicity. Testing of residual oils for mutation-causing and cancer-causing potential has shown negative results, supporting the belief that these materials lack biologically active components or the components are largely non-bioavailable due to their molecular size. Toxicity testing has consistently shown that lubricating base oils have low acute toxicities. For highly and severely refined distillate base oils: In animal studies, the acute, oral, semilethal dose is >5g/kg body weight and the semilethal dose by skin contact is >2g/kg body weight. The semilethal concentration for inhalation is 2.18 to >4 mg/L. The materials have varied from "non-irritating" to "moderately irritating" when tested for skin and eye irritation. Testing for sensitisation has been negative.
	The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.

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 either not available or does not fill the criteria for classification
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

20446, 20448, 20345, 22150, 22151, 22175 TOP TEC 4600 5W-30 1L, 5L, 20L, 60L, 205L, 1000L	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
lubricating oils, petroleum C20-50, hydrotreated neutral	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	>10-mg/L	2
	NOEC	504	Crustacea	>1mg/L	1
paraffinic distillate, heavy, solvent-refined (severe)	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	>10-mg/L	2
	EC50	96	Algae or other aquatic plants	>1000mg/L	1
	NOEC	504	Crustacea	>1mg/L	1
lubricating oils, petroleum C15-30 hydrotreated neutral	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	1.13mg/L	2
	EC50	48	Crustacea	2mg/L	2
	EC50	72	Algae or other aquatic plants	1.714mg/L	2
	NOEL	504	Crustacea	0.163mg/L	2
paraffinic distillate, heavy, hydrotreated (severe)	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	>10-mg/L	2
	EC50	96	Algae or other aquatic plants	>1000mg/L	1
	NOEC	504	Crustacea	>1mg/L	1
nonylated diphenylamines	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	51mg/L	2
	EC50	72	Algae or other aquatic plants	>100mg/L	2
	EC0	24	Crustacea	22mg/L	2
	NOEC	96	Crustacea	<10mg/L	1

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

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. ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
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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 and the IBC code

Not Applicable

SECTION 15 Regulatory information

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 Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

lubricating oils, petroleum C20-50, hydrotreated neutral is found on the following regulatory lists

Canada Categorization decisions for all DSL substances
Canada Domestic Substances List (DSL)

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

paraffinic distillate, heavy, solvent-refined (severe) is found on the following regulatory lists

Canada Categorization decisions for all DSL substances
Canada Domestic Substances List (DSL)

Chemical Footprint Project - Chemicals of High Concern List

lubricating oils, petroleum C15-30 hydrotreated neutral is found on the following regulatory lists

Canada Categorization decisions for all DSL substances
Canada Domestic Substances List (DSL)
Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS GHS

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

paraffinic distillate, heavy, hydrotreated (severe) is found on the following regulatory lists

Canada Categorization decisions for all DSL substances
Canada Domestic Substances List (DSL)

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

nonylated diphenylamines is found on the following regulatory lists

Canada Categorization decisions for all DSL substances

Canada Domestic Substances List (DSL)

National Inventory Status

National Inventory	Status
Australia - AIIC	Yes
Australia - Non-Industrial Use	No (lubricating oils, petroleum C20-50, hydrotreated neutral; paraffinic distillate, heavy, solvent-refined (severe); lubricating oils, petroleum C15-30 hydrotreated neutral; paraffinic distillate, heavy, hydrotreated (severe); nonylated diphenylamines)
Canada - DSL	Yes
Canada - NDSL	No (lubricating oils, petroleum C20-50, hydrotreated neutral; paraffinic distillate, heavy, solvent-refined (severe); lubricating oils, petroleum C15-30 hydrotreated neutral; paraffinic distillate, heavy, hydrotreated (severe); nonylated diphenylamines)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (lubricating oils, petroleum C20-50, hydrotreated neutral; lubricating oils, petroleum C15-30 hydrotreated neutral)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (lubricating oils, petroleum C20-50, hydrotreated neutral; nonylated diphenylamines)
Vietnam - NCI	Yes
Russia - ARIPS	No (lubricating oils, petroleum C20-50, hydrotreated neutral; lubricating oils, petroleum C15-30 hydrotreated neutral)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	01/11/2019
Initial Date	06/08/2019

SDS Version Summary

Version	Issue Date	Sections Updated
3.1.1.1	07/08/2019	Ingredients
4.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

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.

The 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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
 PC—STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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