

Mopar(FCA US LLC Service & Customer Care Division)	Chemwatch Hazard Alert Code: 0
Catalogue number: 287 Version No: 1.3	Issue Date: 30/05/2018 Print Date: 30/05/2018
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements	L.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	TRANSFER CASE LUBRICANT NV246
Synonyms	05179014AA
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	Mopar(FCA US LLC Service & Customer Care Division)
Address	26311 Lawrence Avenue, Center Line Michigan 48015 United States
Telephone	1-800-846-6727
Fax	Not Available
Website	Not Available
Email	moparsds@fcagroup.com

Emergency phone number

Association / Organisation	CHEMTREC
Emergency telephone numbers	+1 703-741-5970
Other emergency telephone numbers	248-512-8002

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	0		
Toxicity	0		0 Minimum
Body Contact	0		1 = Low
Reactivity	0		2 = Moderate
Chronic	0		3 = High 4 = Extreme

Classification

Not Applicable



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)

Label elements

Hazard pictogram(s)	Not Applicable
SIGNAL WORD	NOT APPLICABLE

Hazard statement(s)

Not Applicable

Hazard(s) not otherwise specified

Not Applicable

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501 Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name	
72623-86-0.	80-90	lubricating oils, petroleum C15-30 hydrotreated neutral	
Not Available	0.1-1	Alkoxylated long-chain alkyl amine	

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

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.

Most important symptoms and effects, both acute and delayed

See Section 11

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.
- Water spray or fog Large fires only.

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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• 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. ۲ **Fire Fighting** Avoid spraying water onto liquid pools. DO NOT approach containers suspected to be hot. ÷. Cool fire exposed containers with water spray from a protected location. ۲ If safe to do so, remove containers from path of fire. Combustible. Þ. 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). May emit acrid smoke. ۲ Fire/Explosion Hazard Mists containing combustible materials may be explosive. Combustion products include: carbon dioxide (CO2) 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

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. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal. 								
	Chemical Class: aliphatic hy For release onto land: recor	/drocarbons mmended sorbent	s listed in order of priority	<u>.</u>					
	SORBENT TYPE	RANK	APPLICATION		С	COLLECTIC	DN	LIMITATIONS	
	LAND SPILL - SMALL								
	cross-linked polymer - par	ticulate		1	shov	vel	shovel	R, W, SS	
	cross-linked polymer - pillo	W		1	throv	w	pitchfork	R, DGC, RT	
	wood fiber - pillow			2	throv	w	pitchfork	R, P, DGC, RT	
	treated wood fibre- pillow			2	throv	w	pitchfork	DGC, RT	
	sorbent clay - particulate			3	shovel s		shovel	R, I, P	
	foamed glass - pillow			3	throw	w	pitchfork	R, P, DGC, RT	
	LAND SPILL - MEDIUM								
	cross-linked polymer - part	iculate		1	blower	s	kiploader	R,W, SS	
Major Spillo	cross-linked polymer - pillow 2				throw		kiploader	R, DGC, RT	
	sorbent clay - particulate 3			3	blower		kiploader	R, I, P	
	polypropylene - particulate			3	blower	s	kiploader	W, SS, DGC	
	expanded mineral - particulate 4			4	blower		kiploader	R, I, W, P, DGC	
	polypropylene - mat			4	throw	s	kiploader	DGC, RT	
	Legend DGC: Not effective where gr R; Not reusable I: Not incinerable P: Effectiveness reduced wh RT:Not effective where terra SS: Not for use within enviro W: Effectiveness reduced wh Reference: Sorbents for Liq R.W Melvold et al: Pollution Slippery when spilt. Moderate hazard. • Clear area of personnel • Alert Fire Brigade and tr • Wear breathing apparat • Prevent, by any means	en rainy ain is rugged nmentally sensitive len windy juid Hazardous Su Technology Revier and move upwind. ell them location ai tus plus protective available, spillage	se e sites bstance Cleanup and Co w No. 150: Noyes Data (nd nature of hazard. gloves. from entering drains or v	ontrol; Corpora	tion 198 purse.	38			

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No smoking, naked lights or ignition sources.
► Increase ventilation.
▶ Stop leak if safe to do so.
Contain spill with sand, earth or vermiculite.
 Collect recoverable product into labelled containers for recycling.
Absorb remaining product with sand earth or vermiculite
Collect solid registrations and seal in labelled drums for disposal
Wash area and revent runoff into drains
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Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling	9
Safe handling	 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. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
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. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.

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
US NIOSH Recommended Exposure Limits (RELs)	lubricating oils, petroleum C15-30 hydrotreated neutral	Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist	5 mg/m3	10 mg/m3	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	lubricating oils, petroleum C15-30 hydrotreated neutral	Mineral oil, excluding metal working fluids - Poorly and mildly refined	Not Available	Not Available	Not Available	TLV® Basis: URT irr
US ACGIH Threshold Limit Values (TLV)	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
US OSHA Permissible Exposure Levels (PELs) - Table Z1	lubricating oils, petroleum C15-30 hydrotreated neutral	Oil mist, mineral	5 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
TRANSFER CASE LUBRICANT NV246	Not Available	Not Available	Not Available	Not Available
Ingredient	Original IDLH		Revised IDLH	
lubricating oils, petroleum C15-30 hydrotreated neutral	2500 mg/m3		Not Available	
Alkoxylated long-chain alkyl amine	Not Available		Not Available	

MATERIAL DATA

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

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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.

NOTE M: The classification as a carcinogen need not apply if it can be shown that the substance contains less than 0.005% w/w benzo[a]pyrene (EINECS No 200-028-5). This note applies only to certain complex oil-derived substances in Annex IV.

European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

NOTE L: The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346. European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

Exposure 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. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use Employers may need to use multiple types of controls to prevent employee overexposure. General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant. Type of Contaminant: Air Speed: 0.25-0.5 m/s (50-100 solvent, vapours, degreasing etc., evaporating from tank (in still air) f/min) aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating 0.5-1 m/s (100-200 acid fumes, pickling (released at low velocity into zone of active generation) f/min) direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation 1-2.5 m/s (200-500 Appropriate engineering into zone of rapid air motion) f/min) controls grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high 2.5-10 m/s (500-2000 f/min.) rapid air motion). Within each range the appropriate value depends on: Lower end of the range Upper end of the range 1: Room air currents minimal or favourable to capture 1: Disturbing room air currents 2: Contaminants of low toxicity or of nuisance value only 2: Contaminants of high toxicity 3: Intermittent, low production 3: High production, heavy use 4: Large hood or large air mass in motion 4: Small hood - local control only Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used. Personal 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 Eve and face protection class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent] Skin protection See Hand protection below 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. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Hands/feet protection Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: frequency and duration of contact, chemical resistance of glove material, glove thickness and dexteritv Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

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 Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. Contaminated gloves should be replaced. For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only he worn on clean hands. After using cloves, hands should be washed and dried thoroughly Application of a non-perfurmed moist uriser is
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recommended.
Body protection See Other protection below
Other protection No special equipment needed when handling small quantities. OTHERWISE: • Overalls. • Barrier cream. • Everyweit with

Respiratory protection

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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Blue		
Physical state	Liquid	Relative density (Water = 1)	0.8508
Odour	No odour or slight petroleum oil like	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	34.41 @ 40°C 7.33 @ 100°C
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	212	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Do not pressurize, cut weld, braze, solder, drill grind or expose containers to heat or sources of ignition.
Flammability	Low fire hazard. This material must be heated before ignition will occur.	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)	Insoluble	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

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	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting
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	Inhalation hazard is increased at higher temperatures. Not normally a hazard due to non-volatile nature of product Inhalation of oil droplets/ aerosols may cause discomfort and may pro	luce chemical pneumonitis.	
Ingestion	The material has NOT been classified by EC Directives or other class corroborating animal or human evidence. The material may still be da pre-existing organ (e.g liver, kidney) damage is evident. Present defir mortality rather than those producing morbidity (disease, ill-health). G setting however, ingestion of insignificant quantities is not thought to	sification systems as "harmful by ingest maging to the health of the individual, fo itions of harmful or toxic substances are astrointestinal tract discomfort may prod be cause for concern.	ion". This is because of the lack of ollowing ingestion, especially where generally based on doses producing luce nausea and vomiting. In an occupational
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 . The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds 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 characterised by tearing or conjunctival redness (as with windburn).	Directives), direct contact with the eye	may produce transient discomfort
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course. Repeated application of mildly hydrotreated oils (principally paraffinic), to mouse skin, induced skin tumours; no tumours were induced with severely hydrotreated oils. On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.		
TRANSFER CASE LUBRICANT	TOXICITY IRRITATION		
NV246	Not Available Not Available		
	ΤΟΧΙΟΙΤΥ		IRRITATION
lubricating oils, petroleum	Dermal (rabbit) LD50: >2000 mg/kg ^[1]		Not Available
C15-30 hydrotreated neutral	Inhalation (rat) LC50: >3.9 mg/l4 h ^[1]		
	Oral (rat) LD50: >2000 mg/kg ^[1]		
Alkoxylated long-chain alkyl	тохісіту	IRRITATION	
amine	Not Available	Not Available	
Legend:	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		
	for Unrefined and Mildly Refined Distillate Base Oils Acute toxicity: LD50s of >5000 mg/kg (bw) and >2g/kg (bw) for the with an unrefined light paraffinic distillate The same material was also irritation in rabbits, the material produced Draize scores of 3.0 and 4.0. The material was reported to be "not sensitising" when tested in quint	oral and dermal routes of exposure, resp reported to be "moderately irritating" to t (unwashed/washed eyes) at 24 hours, a pigs	bectively, have been observed in rats dosed the skin of rabbits. When tested for eye with the scores returning to zero by 48 hours.

Repeat dose toxicity: 200, 1000 and 2000 mg/kg (bw)/day of an unrefined base oil has been applied undiluted to the skin of male and female rabbit. The test material was applied to the rabbits' skins 3 times/week for 4 weeks. To ensure maximum exposure, the applied material was covered with an occlusive dressing for 6 hours. In the high dose group, body weight gains were affected by treatment. These effects were largely due to effects on growth rate during the first week of the study. There were no significant differences between treated and control groups for any of the recorded haematological and clinical chemistry values. Gross and microscopic pathology findings relating to the treated skin were seen in all rabbits in the highest dose group. The findings consisted of "slight" to "moderate" proliferative changes in the treated skin.

Reproductive developmental toxicity No reproductive or developmental toxicity studies have been reported for unrefined & mildly refined distillate base oils. However, a developmental toxicity screening study has been reported for heavy vacuum gas oil, a material with a process history similar to the unrefined distillate base oils. As an unrefined vacuum distillate material, heavy vacuum gas oil contains the broadest spectrum of chemical components and highest concentration of bioavailable and/or biologically active components Because of their lack of or low level of processing, in comparison to other refined base oils, the unrefined lubricating base oils will also have higher concentrations of bioavailable and/or biologically active components. Heavy vacuum gas oil gestation. Dose levels administered included: 30, 125, 500 and 1000 mg/kg (bw)/dav. All animals were euthanised on day 20. In the dams, the only dose-related finding at gross necroosy was pale colored lungs in four animals

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in the highest dose group and in one animal in the 500 mg/kg (bw)/day group. Mean thymus weights of the dams in the highest dose group were approximately half those of the control groups. Although absolute liver weights were unaffected by exposure to the gas oil, mean relative liver weights were increased (approximately 15%) in groups exposed to doses greater than 125 mg/kg (bw)/day. Maternal and foetal body weights were reduced at 500 and 1000 mg/kg (bw)/day. Significant increases in resorptions were also seen in these two dose groups. Soft tissue variations and malformations, and skeletal malformations were also increased at 500 and 1000 mg/kg

Genotoxicity: Modified Ames assays have been carried out on a number of base oils that were either unrefined or poorly refined. The oils were found to be mutagenic, with a strong correlation between mutagenicity and 3-7 ring PAC content.

Carcinogenicity: The general conclusions that can drawn from the animal carcinogenicity studies are potential skin carcinogens. When applied repeatedly to the skin, carcinogenic base oils are associated only with skin tumours and not with an increase in systemic tumours Residual Base Oils

Residual oils have substantial polycyclic aromatic compound (PAC) levels when assayed by traditional methods. On this basis, they would be expected to have mutagenic and/or carcinogenic activity. However, no adverse effects have been seen in either in vitro mutagenicity or dermal carcinogenicity testing of residual base oils, irrespective of the degree of processing they have undergone. Ultraviolet, HPLC/UV, GC/MS, and infrared analyses of these oils indicate that the aromatics they contain are predominantly 1-3 rings that are highly alkylated (paraffinic and naphthenic). Because they are found in such a high boiling material (> 550 C), it is estimated that the alkyl side-chains of these 1-3 ring aromatics would be approximately 13 to 25 carbons in length. These highly alkylated aromatic ring materials are either devoid of the biological activity necessary to cause mutagenesis and carcinogenesis, or are largely non-bioavailable to the organisms.

Acute toxicity: There are no acute toxicity data available for the residual base oils. It is thought that the high molecular weight of these materials and associated low bioavailability preclude the systemic doses necessary to produce acute toxicity. Furthermore, tests of a variety of distillate base oils,

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	including unrefined materials that contain high levels of biologically active materials, have consistently shown low acute toxicity. Repeat dose toxicity: No subchronic repeat-dose studies have been reported on residual base oils. However, two dermal carcinogenicity studies have been performed Reproductive and developmental toxicity: There are no reproductive or developmental toxicity data available for the residual base oils Carcinogenicity: A dermal carcinogenicity study of a residual base oil in mice has been reported. The test substance was described as "a non-solvent refined, deasphalted, dewaxed residual paraffinic lubricant base oil". For eighteen months, three times/week, undiluted test material was applied to the skin of female CF1 mice. Two other groups of mice underwent similar treatments, but for only 22 or 52 weeks. The base oil produced minimal clinical evidence of skin irritation. No tumours of epidermal origin were observed in animals dosed with the base oil. Furthermore, no treatment-related effects were observed with regard to clinical condition, body weight gain, mortality or post mortem findings. A second dermal carcinogenicity study of a residual base oil has been conducted in male C3H/HeJ mice. The test substance was described as "deasphalted, dewaxed, residual oil". The test material was applied undiluted to the animals' backs, three times/week for 24 months. None of the animals treated with the test material developed skin tumours, or any other tumours considered treatment-related. The absence of systemic toxicity in these two dermal carcinogenicity studies supports the belief that the high molecular weight of the residual base oils and the resulting low bio- availability preclude the internal doses necessary to elicit systemic toxicity. Genotoxicity : <i>In vitro</i> (mutagenicity): Samples of a vacuum residuum and four residual base oils tested negative for the induction of frame shift mutations in modified Ames assays <i>In vivo</i> (chromosomal aberrations): There is no in vivo
TRANSFER CASE LUBRICANT NV246 & LUBRICATING OILS, PETROLEUM C15-30 HYDROTREATED NEUTRAL	The materials included in the Lubricating Base Oils category are related from both process and physical-themical perservives: The potential toxicity of a spacific dialilable base oils inversely related to the serverity or active of processing the oil has undergone, since: The adverse effects of these materials are associated with undesirable components, and The potential toxicity of residual active acids is independent of the degree of processing the oil fragments. The adverse of the undesirable components are inversely related to the degree of processing (Distillable base oils receiving the same degree or extent of processing will have similar toxicilies; The operand individy of residual active acids is independent of the degree of processing and increases. The adverse of their and functional base oils independent of the degree of processing are indequal to substantially reduce the carcinogenic potential of lubricant base oils, hydotreatment and / or solvent extraction methods can yield oils base oils are a snaller angel on processing are indequal to substantially reduce the carcinogenic potential of lubricant base oils, hydotreatment and / or solvent extraction methods can yield oils base oils, are a snaller angel on hydocatabox molecules and have shown the highest potential carcinogenic and mutagenic activities. Highly and severely refined distillable base oils are produced from unrefined and mildy refined allos base is there a snaller arge of hydocatabox molecules and have demonstrated were werp will wan armanial in tokidy, Mutagenidity and carcinogenicity testing of residual to is have here again size. Toxicit (testing has consistently shown that lubricating base oil's have low acute toxicities. Numerous tests have shown that a lubricating base oil's mutagenic and carcinogenic potential correlates with its 3.7 mig potycical caromatic component (hydocatabox) or all NoAEL for heavy parafinic distillate arcmatic extract could not be identified and is less than 125 myRg/day when administered o
TRANSFER CASE LUBRICANT NV246 & LUBRICATING OILS, PETROLEUM C15-30 HYDROTREATED NEUTRAL	 Highly and Severely Refined Distillate Base Oils Acute toxicity: Multiple studies of the acute toxicity of highly & severely refined base oils have been reported. Irrespective of the crude source or the method or extent of processing, the oral LD50s have been observed to be >5 g/kg (bw) and the dermal LD50s have ranged from >2 to >5g/kg (bw). The LC50 for inhalation toxicity ranged from 2.18 mg/l to> 4 mg/l. When tested for skin and eye irritation, the materials have been reported as "non-irritating" to "moderately irritating" Testing in guinea pigs for sensitization has been negative Repeat dose toxicity: . Several studies have been conducted with these oils. The weight of evidence from all available data on highly & severely refined base oils support the presumption that a distillate base oil's toxicity is inversely related to the degree of processing it receives. Adverse effects have been reported with even the most severely refined white oils - these appear to depend on animal species and/ or the peculiarities of the study. The granulomatous lesions induced by the oral administration of white oils are essentially foreign body responses. The lesions occur only in rats, of which the Fischer 344 strain is particularly sensitive, The testicular effects seen in rabbits after dermal administration of a highly to severely refined base oil were unique to a single study and may have been related to stress induced by skin irritation, and The accumulation of foamy macrophages in the alveolar spaces of rats exposed repeatedly via inhalation to high levels of highly to severely refined base oils is not unique to these oils, but would be seen after exposure to many water insoluble materials.

Reproductive and developmental toxicity: A highly refined base oil was used as the vehicle control in a one-generation reproduction study. The study was conducted according to the OECD Test Guideline 421. There was no effect on fertility and mating indices in either males or females. At necropsy, there

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	were no consistent findings and organ weights and histop. A single generation study in which a white mineral oil (a for groups of pregnant rats were administered 5 ml/kg (bw)/d groups, three malformed foetuses were found among three ranges for the strain of rat. Genotoxicity: <i>In vitro</i> (mutagenicity): Several studies have reported the no or low concentrations of 3-7 ring PACs had low mutag <i>In vivo</i> (chromosomal aberrations): A total of seven base a sasay. The test materials were administered via gavage a five consecutive days. None of the base oils produced a s Carcinogenicity: Highly & severely refined base oils are	athology were considered normal by the book/ drug grade severely refined base oil ay of the base oil via gavage, on days 6 t e litters The study authors considered th results of testing different base oils for m enicity indices. stocks were tested in male and female S at dose levels ranging from 500 to 5000 significant increase in aberrant cells.	study's authors. I) was used as a vehicle control is reported. Two sepa rate through 19 of gestation. In one of the two base oil dose ese malformations to be minor and within the normal autagenicity using a modified Ames assay Base oils with prague-Dawley rats using a bone marrow cytogenetics mg/kg (bw). Dosing occurred for either a single day or for Ily or dermally.
Acute Toxicity	0	Carcinogenicity	0
Skin Irritation/Corrosion	0	Reproductivity	0
Serious Eye Damage/Irritation	0	STOT - Single Exposure	\otimes
Respiratory or Skin sensitisation	\odot	STOT - Repeated Exposure	0
Mutagenicity	0	Aspiration Hazard	0
		Legend: X - [- Data available but does not fill the criteria for classification

Data available to make classification

O – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity ENDPOINT **TEST DURATION (HR)** SPECIES VALUE SOURCE TRANSFER CASE LUBRICANT NV246 Not Available Not Available Not Available Not Available Not Available TEST DURATION (HR) ENDPOINT SPECIES VALUE SOURCE lubricating oils, petroleum EC50 48 Crustacea >1000mg/L 1 C15-30 hydrotreated neutral NOEC 504 Crustacea >1mg/L 1 ENDPOINT TEST DURATION (HR) SPECIES VALUE SOURCE Alkoxylated long-chain alkyl amine Not Available Not Available Not Available Not Available Not Available

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

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the

oxygen transfer between the air and the water

Oils of any kind can cause:

In drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility

lethal effects on fish by coating gill surfaces, preventing respiration

+ asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and

adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation.

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. If it has been contaminated, it may
be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this
type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
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 sever 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.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant NO

Land transport (DOT): 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

LUBRICATING OILS, PETROLEUM C15-30 HYDROTREATED NEUTRAL(72623-86-0.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
Monographs	US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air
US - Alaska Limits for Air Contaminants	Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants	US - Washington Permissible exposure limits of air contaminants
US - California Proposition 65 - Carcinogens	US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Hawaii Air Contaminant Limits	US ACGIH Threshold Limit Values (TLV)
US - Idaho - Limits for Air Contaminants	US ACGIH Threshold Limit Values (TLV) - Carcinogens
US - Michigan Exposure Limits for Air Contaminants	US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US - Minnesota Permissible Exposure Limits (PELs)	US NIOSH Recommended Exposure Limits (RELs)
US - Oregon Permissible Exposure Limits (Z-1)	US OSHA Permissible Exposure Levels (PELs) - Table Z1
US - Pennsylvania - Hazardous Substance List	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	US TSCA Chemical Substance Inventory - Interim List of Active Substances

ALKOXYLATED LONG-CHAIN ALKYL AMINE(NOT AVAILABLE) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Not Applicable

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

Flammable (Gases, Aerosols, Liquids, or Solids)	
Gas under pressure	
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	No
Reproductive toxicity	No

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Skin Corrosion or Irritation	
Respiratory or Skin Sensitization	
Serious eye damage or eye irritation	
Specific target organ toxicity (single or repeated exposure)	
Aspiration Hazard	
Germ cell mutagenicity	
Simple Asphyxiant	

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

State Regulations

US. CALIFORNIA PROPOSITION 65

None

US - CALIFORNIA PROPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE None

National Inventory Status Australia - AICS Y Canada - DSL V Canada - NDSL N (lubricating oils, petroleum C15-30 hydrotreated neutral) China - IECSC Υ Europe - EINEC / ELINCS / NLP Υ Japan - ENCS N (lubricating oils, petroleum C15-30 hydrotreated neutral) Korea - KECI γ New Zealand - NZIoC Υ Philippines - PICCS Υ USA - TSCA Υ Y = All ingredients are on the inventory Legend: N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	30/05/2018
Initial Date	30/05/2018

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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