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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	: Shell Gadus S4 V150KP 2
Product code	: 001E0211
UFI	: PXD0-R0WF-300K-X4M9

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

Use of the Substance/Mixture	:	Automotive and industrial grease.
Uses advised against	:	This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	: Shell Deutschland GmbH
	Suhrenkamp 71-77
	D-22335 Hamburg
Telephone	: (+49) 40 6324-6255
Telefax	: (+49) 40 6321-051
Email Contact for Safety Data	: If you have any enquiries about the content of this SDS
Sheet	please email lubricantSDS@shell.com

1.4 Emergency telephone number

: (+49) 30 3068 6700 (Giftnotruf Berlin)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitisation, Category 1 Serious eye damage, Category 1 H317: May cause an allergic skin reaction. H318: Causes serious eye damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)



	L		
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	H317 H318	Not classified as a physic according to CLP criteria HEALTH HAZARDS: May cause an allergic sk Causes serious eye dam ENVIRONMENTAL HAZ Not classified as environ according to CLP criteria	in reaction. iage. ARDS: mental hazard
Precautionary statements :	Prevention: P280 Response: P302 + P352	Wear protective gloves/ eye protection/ face protection/ face protection/ face protection/ face protection/ face protection (face protection) IF ON SKIN: Wash with protection (face protection) soap.	ection.
	P305 + P351 + P3	338 IF IN EYES: Rinse of water for several minutes lenses, if present and ea rinsing.	s. Remove contact sy to do. Continue
	P310	Immediately call a POIS CENTER/doctor.	NC
	Storage:	No procentionary phrase	C
	Disposal:	No precautionary phrase	
		No precautionary phrase	S.

Hazardous components which must be listed on the label: Contains Lithium Borated Complex. Contains zinc naphthenate.

2.3 Other hazards

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Used oil may contain harmful impurities.

High-pressure injection under the skin may cause serious damage including local necrosis. Not classified as flammable but will burn.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature	 A lubricating grease containing highly-refined mineral oils, polyalphaolefins and additives.
	The highly refined mineral oil contains <3% (w/w) DMSO- extract, according to IP346.
	Classification based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

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Hazardous components

Chemical name	CAS-No. EC-No.	Classification (REGULATION	Concentration (% w/w)
	Registration number	(EC) No 1272/2008)	
Lithium complex thickener	12006-96-1	Acute Tox.4; H302 Eye Dam.1; H318	3 - 10
	01-2120772309-47	Repr.2; H361d	
Zinc naphthenate	84418-50-8 282-762-6	Skin Sens.1B; H317	1 - 2,49
	01-2119988500-34	Aquatic Chronic2;	
		H411	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

Protection of first-aiders	: When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.	
If inhaled	: No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.	
In case of skin contact	: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.	
	When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.	
In case of eye contact	 Immediately flush eye(s) with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Transport to the nearest medical facility for additional treatment. 	
If swallowed	: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.	
4.2 Most important symptoms and effects, both acute and delayed		

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	sensation, redness, swelling, and/or Oil acne/folliculitis signs and sympto of black pustules and spots on the sl Ingestion may result in nausea, vom	ms may include formation kin of exposed areas.
	Local necrosis is evidenced by delay tissue damage a few hours following	
4.3 Indication of any imm	ediate medical attention and special treatmen	nt needed
Treatment	: Notes to doctor/physician: Treat symptomatically.	
	High pressure injection injuries requi intervention and possibly steroid the damage and loss of function. Because entry wounds are small and seriousness of the underlying damage determine the extent of involvement anaesthetics or hot soaks should be can contribute to swelling, vasospas surgical decompression, debridement foreign material should be performed anaesthetics, and wide exploration is	rapy, to minimise tissue d do not reflect the ge, surgical exploration to may be necessary. Local avoided because they m and ischaemia. Prompt nt and evacuation of d under general

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Unsuitable extinguishing media 5.2 Special hazards arising from	 Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not use water in a jet. 	
Specific hazards during firefighting	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.	6
5.3 Advice for firefighters		
Special protective equipment for firefighters	: Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated large contact with spilled product is expected. Self-Contai Breathing Apparatus must be worn when approaching a fi a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).	ined ire in
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.	

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	: 6.1.1 For non emergency personnel:
-	Avoid contact with skin and eyes.
	6.1.2 For emergency responders:
	Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions	: Use appropriate containment to avoid environmental
	contamination. Prevent from spreading or entering drains,
	ditches or rivers by using sand, earth, or other appropriate
	barriers.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: Shovel into a suitable clearly marked container for disposal or
	reclamation in accordance with local regulations.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

General Precautions	 Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
7.1 Precautions for safe handling	
Advice on safe handling	 Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning

Fire-fighting class : Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

materials in order to prevent fires.

7.2 Conditions for safe storage, including any incompatibilities

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Storage class (TRGS 510)	: 10, Combustible liquids	
Other data	: Keep container tightly closed and in a c place. Use properly labeled and closab	-
	Store at ambient temperature.	
	Refer to section 15 for any additional s covering the packaging and storage of	
Packaging material	: Suitable material: For containers or cor steel or high density polyethylene. Unsuitable material: PVC.	ntainer linings, use mild
Container Advice	: Polyethylene containers should not be temperatures because of possible risk	
7.3 Specific end use(s)		
Specific use(s)	: Not applicable	

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Oil mist, mineral		TWA	5 mg/m3	US. ACGIH Threshold Limit Values

Biological occupational exposure limits

No biological limit allocated. **Monitoring Methods**

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/

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Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany http://www.dguv.de/inhalt/index.jsp

L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

8.2 Exposure controls

Engineering measuresThe level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.

Personal protective equipment

The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection :	 Wear goggles for use against liquids and gas, combined with face shield. Approved to EU Standard EN166. Wear full face shield if splashes are likely to occur. If a local risk assessment deems it so then chemical splash
	goggles may not be required and safety glasses may provide adequate eye protection.

Hand protection

Remarks

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	gloves approved to relevant standa US: F739) made from the following suitable chemical protection. PVC, gloves Suitability and durability of usage, e.g. frequency and duratior resistance of glove material, dexte from glove suppliers. Contaminate replaced. Personal hygiene is a ke care. Gloves must only be worn or gloves, hands should be washed a Application of a non-perfumed moi	g materials may provide , neoprene or nitrile rubber a glove is dependent on n of contact, chemical rity. Always seek advice d gloves should be ey element of effective hand n clean hands. After using and dried thoroughly.
	For continuous contact we recomm breakthrough time of more than 24 for > 480 minutes where suitable g short-term/splash protection we re- recognize that suitable gloves offe may not be available and in this ca time maybe acceptable so long as and replacement regimes are follor a good predictor of glove resistant dependent on the exact composition Glove thickness should be typically depending on the glove make and	40 minutes with preference gloves can be identified. For commend the same but ring this level of protection ase a lower breakthrough appropriate maintenance wed. Glove thickness is not ce to a chemical as it is on of the glove material. y greater than 0.35 mm
Skin and body protection	: Wear chemical resistant gloves/ga risk of splashing, also wear an apr Protective clothing approved to EU	on.
Respiratory protection	: No respiratory protection is ordinar conditions of use. In accordance with good industrial precautions should be taken to avo If engineering controls do not main concentrations to a level which is a health, select respiratory protection specific conditions of use and mee Check with respiratory protective e Where air-filtering respirators are s appropriate combination of mask a Select a filter suitable for combined and vapours [Type A/Type P boilin meeting EN14387 and EN143.	hygiene practices, oid breathing of material. atain airborne adequate to protect worker n equipment suitable for the equipment suppliers. suitable, select an and filter. d particulate/organic gases
Thermal hazards	: Not applicable	

Environmental exposure controls

General advice

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	relevant environmental protection le contamination of the environment by Section 6. If necessary, prevent und being discharged to waste water. W treated in a municipal or industrial w before discharge to surface water. Local guidelines on emission limits f must be observed for the discharge vapour.	y following advice given in dissolved material from aste water should be vaste water treatment plant for volatile substances

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Semi-solid.
Colour	: brown
Odour	: Slight hydrocarbon
Odour Threshold	: Data not available
рН	: Not applicable
Dropping point	: 260 °CMethod: IP 396
Melting / freezing point	Not applicable
Initial boiling point and boiling range	: Data not available
Flash point	: Method: Unspecified Remarks: Not applicable
Evaporation rate	: Data not available
Flammability (solid, gas)	: Data not available
Upper explosion limit	: Typical 10 %(V)
Lower explosion limit	: Typical 1 %(V)
Vapour pressure	: < 0,5 Pa (20 °C) estimated value(s)
Relative vapour density	: > 1estimated value(s)
Relative density	: 1.000 (15 °C)
Density	: 1.000 kg/m3 (15 °C) Method: Unspecified

Solubility(ies)

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Water solubility :	negligible	
Solubility in other solvents :	Data not available	
Partition coefficient: n- : octanol/water	log Pow: > 6(based on information on similar	r products)
Auto-ignition temperature :	> 320 °C	
Decomposition temperature :	Data not available	
Viscosity		
Viscosity, dynamic :	Data not available	
Viscosity, kinematic :	Not applicable	
Explosive properties :	Not classified	
Oxidizing properties :	Data not available	
9.2 Other information		

SECTION 10: Stability and reactivity

Conductivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

: This material is not expected to be a static accumulator.

10.2 Chemical stability

Stable.

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions	: Reacts with strong oxidising agents.
10.4 Conditions to avoid Conditions to avoid	: Extremes of temperature and direct sunlight.
10.5 Incompatible materials	
Materials to avoid	: Strong oxidising agents.
10.6 Hazardous decomposition products	

Hazardous decomposition	: No decomposition if stored and applied as directed.
products	

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Basis for assessment		Information given is based on data on the components and the toxicology of similar products.Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
Information on likely routes of exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute toxicity		
Product:		
Acute oral toxicity	:	LD50 rat: > 5.000 mg/kg Remarks: Low toxicity: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	LD50 Rabbit: > 5.000 mg/kg Remarks: Low toxicity: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Remarks: Slightly irritating to skin., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis., Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product:

Remarks: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Remarks: For skin sensitisation:, Skin sensitiser.

Remarks: For respiratory sensitisation:, Not a sensitiser., Based on available data, the classification criteria are not met.

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Germ cell mutagenicity

Product:

: Remarks: Non mutagenic, Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Remarks: Not a carcinogen., Based on available data, the classification criteria are not met.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skinpainting studies., Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Material	GHS/CLP Carcinogenicity Classification
Highly refined mineral oil	No carcinogenicity classification.

Reproductive toxicity

Product:

Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

Components:

Effects on foetal	:	Remarks: Based on available data, the classification criteria
development		are not met.

STOT - single exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

Aspiration toxicity

Product:

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Not an aspiration hazard.

Further information

Product:

Remarks: Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal., ALL used grease should be handled with caution and skin contact avoided as far as possible.

Remarks: High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

Remarks: Slightly irritating to respiratory system.

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Summary on evaluation of the CMR properties

Germ cell mutagenicity- Assessment	: This product does not meet the criteria for classification in categories 1A/1B.
Carcinogenicity - Assessment	: This product does not meet the criteria for classification in categories 1A/1B.
Reproductive toxicity - Assessment	: This product does not meet the criteria for classification in categories 1A/1B.

SECTION 12: Ecological information

12.1 Toxicity

Basis for assessment	:	Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Toxicity to fish (Acute toxicity)	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.

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Toxicity to crustacean (Acute toxicity)	: Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classific	ation criteria are not met.
Toxicity to algae/aquatic plants (Acute toxicity)	: Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classific	ation criteria are not met.
Toxicity to fish (Chronic toxicity)	: Remarks: Data not available	
Toxicity to crustacean (Chronic toxicity)	: Remarks: Data not available	
Toxicity to microorganisms (Acute toxicity)	: Remarks: Data not available	
12.2 Persistence and degradabili	ity	

Product:

Biodegradability	: Remarks: Not readily biodegradable., Major constituents are
	inherently biodegradable, but contains components that may persist in the environment.

12.3 Bioaccumulative potential

Product:	
Bioaccumulation	: Remarks: Contains components with the potential to bioaccumulate.
Partition coefficient: n- octanol/water	 log Pow: > 6Remarks: (based on information on similar products)
12.4 Mobility in soil	
Product:	
Mobility	: Remarks: Semi-solid under most environmental conditions., If it enters soil, it will adsorb to soil particles and will not be mobile.

12.5 Results of PBT and vPvB assessment

Product:

Assessment	 This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.
12.6 Other adverse effects	
Product:	
Additional ecological information	: Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential., Product

Remarks: Floats on water.

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	is a mixture of non-volatile compon- released to air in any significant qua conditions of use. Poorly soluble mixture., Causes phi organisms. Mineral oil does not cause chronic to organisms at concentrations less th	antities under normal ysical fouling of aquatic toxicity to aquatic

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	 Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses 	•
	Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Waste, spills or used product is dangerous waste.	
Contaminated packaging	: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.	
Local legislation		
Waste catalogue	:	
	EU Waste Disposal Code (EWC):	
Waste Code	:	
	12 01 12*	
Remarks	: Disposal should be in accordance with applicable regional, national, and local laws and regulations.	
	Classification of waste is always the responsibility of the end user.	

SECTION 14: Transport information

14.1 UN number

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ADN ADR RID IMDG IATA 14.2 Proper shipping name ADN ADR RID	 Not regulated as a dangerous good 	
IMDG IATA	 Not regulated as a dangerous good Not regulated as a dangerous good 	
14.3 Transport hazard class ADN ADR RID IMDG IATA 14.4 Packing group ADN CDNI Inland Water Waste Agreement ADR RID IMDG IATA	 Not regulated as a dangerous good 	
14.5 Environmental hazards ADN ADR RID IMDG 14.6 Special precautions for use Remarks	 Not regulated as a dangerous good 	s to be aware of or

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

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV) : Product is not subject to Authorisation under REACH.

Water contaminating class	: WGK 1 slightly hazardous to water
(Germany)	Remarks: Classification according to AwSV, Annex 1 (5.2)

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Volatile organic compounds	: 0%	
Other regulations	: The regulatory information is not inter comprehensive. Other regulations ma	
	Technische Anleitung Luft: Product ne Observe section 5.2.5 in connection v	
	Product is subject Betriebs-Sicherheir (BetrSichV).	ts-Verordnung
	Compliance with paragraph 22 of You	uth Employment Law.
	Take note of Law on the protection of education and in studies (Maternity P	
	Regulation (EC) No 1907/2006 of the and of the Council of 18 December 20 Registration, Evaluation, Authorisatio Chemicals (REACH), annex XIV. Regulation (EC) No 1907/2006 of the and of the Council of 18 December 20 Registration, Evaluation, Authorisatio Chemicals (REACH), annex XVII. Directive 2004/37/EC on the protection risks related to exposure to carcinoge and its amendments. Directive 1994/33/EC on the protection work and its amendments. Council Directive 92/85/EEC on the ir to encourage improvements in the sa pregnant workers and workers who h or are breastfeeding and its amendments	006 concerning the n and Restriction of European Parliament 006 concerning the n and Restriction of on of workers from the ens or mutagens at work on of young people at ntroduction of measures fety and health at work of ave recently given birth

The components of this product are reported in the following inventories:

REACH	:	All components listed or polymer exempt.
TSCA	:	All components listed.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: Other information	
REGULATION (EC) No 1272/2008	Classification procedure:
Skin sensitisation, Category 1, H317	Expert judgement and weight of evidence determination.
Serious eye damage, Category 1, H318	Expert judgement and weight of evidence

determination.

Full text of H-Statements

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox. Aquatic Chronic Eye Dam. Eye Irrit. Repr. Skin Sens. Abbreviations and Acro	Acute toxicity Long-term (chronic) aquatic hazard Serious eye damage Eye irritation Reproductive toxicity Skin sensitisation vms : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc). The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.
	ACGIH = American Conference of Governmental Industrial Hygienists ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road AICS = Australian Inventory of Chemical Substances ASTM = American Society for Testing and Materials BEL = Biological exposure limits BTEX = Benzene, Toluene, Ethylbenzene, Xylenes CAS = Chemical Abstracts Service CEFIC = European Chemical Industry Council CLP = Classification Packaging and Labelling COC = Cleveland Open-Cup DIN = Deutsches Institut fur Normung DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level DNEL = Derived No Effect Level DSL = Canada Domestic Substance List EC = European Commission EC50 = Effective Concentration fifty ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals ECHA = European Inventory of Existing Commercial Chemical Substances EL50 = Effective Loading fifty ENCS = Japanese Existing and New Chemical Substances Inventory EWC = European Waste Code

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

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	GHS = Globally Harmonised System of G Labelling of Chemicals IARC = International Agency for Researce IATA = International Air Transport Assoc IC50 = Inhibitory Concentration fifty IL50 = Inhibitory Level fifty IMDG = International Maritime Dangerou INV = Chinese Chemicals Inventory IP346 = Institute of Petroleum test meth determination of polycyclic aromatics DM KECI = Korea Existing Chemicals Invent LC50 = Lethal Concentration fifty LD50 = Lethal Dose fifty per cent. LL/EL/IL = Lethal Loading/Effective Load LL50 = Lethal Loading fifty MARPOL = International Convention for Pollution From Ships NOEC/NOEL = No Observed Effect Con Observed Effect Level OE_HPV = Occupational Exposure - Hig PBT = Persistent, Bioaccumulative and T PICCS = Philippine Inventory of Chemica Substances PNEC = Predicted No Effect Concentrati REACH = Registration Evaluation And A Chemicals RID = Regulations Relating to Internation Dangerous Goods by Rail SKIN_DES = Skin Designation STEL = Short term exposure limit TRA = Targeted Risk Assessment TSCA = US Toxic Substances Control Air TWA = Time-Weighted Average vPvB = very Persistent and very Bioaccu	Classification and ch on Cancer diation us Goods hod N° 346 for the ASO-extractables ory ling/Inhibitory loading the Prevention of centration / No h Production Volume Foxic als and Chemical ion duthorisation Of hal Carriage of
Further information		
Training advice	: Provide adequate information, instruction operators.	າ and training for
Other information	: A vertical bar () in the left margin indicat from the previous version.	es an amendment
Sources of key data used to compile the Safety Data Sheet	: The quoted data are from, but not limited sources of information (e.g. toxicological Health Services, material suppliers' data IUCLID date base, EC 1272 regulation, e	data from Shell , CONCAWE, EU

Identified Uses according to the Use Descriptor System Uses - Worker

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Title	: General use of lubricants and greases machinery Industrial	in vehicles or
Uses - Worker Title	: General use of lubricants and greases machinery Professional	s in vehicles or
Uses - Worker Title	: Use of lubricants and greases in open	systems Industrial
Uses - Worker Title	: Use of lubricants and greases in open	systems Professional

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Revision Date 19.01.2021

Exposure Scenario - Worker		
30000000170		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	General use of lubricants and greases in vehicles or machinery Industrial	
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC8b, PROC9 Environmental Release Categories: ERC4, ERC7, ATIEL- ATC SPERC 4.Bi.v1	
Scope of process	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		

Contributing Scenarios	Risk Management Measures
General measures applicable to all activities.	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)Use in closed process, no likelihood of exposure	No other specific measures identified.

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Initial factory fill of equipmentUse in contained systemsUse in closed, continuous process with occasional controlled exposureTransfer of substance or preparation into small containers (dedicated filling line, including weighing) Initial factory fill of equipment(open systems)Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large	No other specific measures identified. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours
containers at dedicated facilities	
Operation of equipment containing engine oils and similar.Use in contained systemsUse in closed process, no likelihood of exposure	No other specific measures identified.
Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Drain down system prior to equipment opening or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Equipment cleaning and maintenanceOperation is carried out at elevated temperature (> 20°C above ambient temperature).Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Drain down system prior to equipment opening or maintenance. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure	Store substance within a closed system.

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Section 2.2	Control of Environmental Exposure	
No exposure assessment presented for the environment.		

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SECTION 3

EXPOSURE ESTIMATION

Section 3.1 - Health

The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 - Environment

No exposure assessment presented for the environment.

SECTION 4

GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

No exposure assessment presented for the environment.

Revision Date 19.01.2021

Exposure Scenario - Worker	
30000000171	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	General use of lubricants and greases in vehicles or machinery Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC1, PROC2, PROC8a, PROC8b, PROC20 Environmental Release Categories: ERC9a, ERC9b, ESVOC SpERC 9.6b.v1
Scope of process	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the	Covers use of substance/product up to 100% (unless stated	
Substance in Mixture/Article	differently).,	
Frequency and Duration of Use		
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		

Contributing Scenarios	Risk Management Measures
General measures applicable to all activities.	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
Operation of equipment containing engine oils and similar.Use in contained	No other specific measures identified.

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systemsUse in closed	
process, no likelihood of	
exposure	
Material transfersNon-	Avoid carrying out activities involving exposure for more than
dedicated facilityTransfer of	4 hours
substance or preparation	Wear chemically resistant gloves (tested to EN374) in
(charging/ discharging)	combination with specific activity training.
from/ to vessels/ large	
containers at non-dedicated	
facilities	
Equipment cleaning and	Drain down system prior to equipment opening or
maintenanceTransfer of	maintenance.
substance or preparation	Retain drain downs in sealed storage pending disposal or for
(charging/ discharging)	subsequent recycle.
from/ to vessels/ large	
containers at dedicated	
facilitiesHeat and pressure	
transfer fluids in dispersive,	
professional use but closed	
systems	
Storage.Use in closed	Store substance within a closed system.
process, no likelihood of	
exposureUse in closed,	
continuous process with	
occasional controlled	
exposure	

Section 2.2	Control of Environmental Exposure	
No exposure assessment presented for the environment.		

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
Scenario are the outcome of a product.	ures/Operational Conditions that are identified in the Exposure a quantitative and qualitative assessment that covers this een used to estimate workplace exposures unless otherwise

Section 3.2 - Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

No exposure assessment presented for the environment.

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Exposure Scenario - Worker	
30000000172	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use of lubricants and greases in open systems Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC7, PROC8b, PROC9, PROC10, PROC13 Environmental Release Categories: ERC4, ATIEL-ATC SPERC 4.Ci.v1
Scope of process	Covers use of lubricants and greases in open systems, including application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mould releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the	Covers use of substance/product up to 100% (unless stated	
Substance in Mixture/Article	differently).,	
Frequency and Duration of	Use	
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
	an 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General measures applicable to all activities.	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. Use suitable eye protection. Avoid direct eye contact with product, also via contamination

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	on hands.	
Material transfersManualTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Avoid carrying out activities involving exposure for more than 1 hour.	
Material transfersAutomated process with (semi) closed systems.Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilitiesTransfer of substance or preparation into small containers (dedicated filling line, including weighing)	Ensure material transfers are under containment or extract ventilation.	
Roller, spreader, flow applicationRoller application or brushing	Provide extraction ventilation at points where emissions occur.	
SprayingIndustrial spraying	Carry out in a vented booth or extracted enclosure. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.	
Treatment by dipping and pouringTreatment of articles by dipping and pouring	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.	
Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Drain down system prior to equipment opening or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	

Section 2.2	Control of Environmental Exposure	
No exposure assessment presented for the environment.		

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SECTION 3 Section 3.1 - Health

The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

EXPOSURE ESTIMATION

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 - Environment

No exposure assessment presented for the environment.

SECTION 4

GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

No exposure assessment presented for the environment.

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Exposure Scenario - Worker		
3000000173		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use of lubricants and greases in open systems Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC1, PROC2, PROC8a, PROC10, PROC11, PROC13 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.6c.v1	
Scope of process	Covers use of lubricants and greases in open systems, including application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mould releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information	No exposure assessment presented for the environment.	

Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the	Covers use of substance/product up to 100% (unless stated	
Substance in Mixture/Article		
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		

Contributing Scenarios	Risk Management Measures
General measures applicable to all activities.	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. Use suitable eye protection. Avoid direct eye contact with product, also via contamination

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	on hands.	
Material transfersManualTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Avoid carrying out activities involving exposure for more than 1 hour.	
Roller, spreader, flow applicationRoller application or brushing	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.	
SprayingNon industrial spraying	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 1 hour. Wear a respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable coveralls to prevent exposure to the skin. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.	
Treatment by dipping and pouringTreatment of articles by dipping and pouring	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	 Drain down system prior to equipment opening or maintenance. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours Retain drain downs in sealed storage pending disposal or for subsequent recycle. 	
Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure	Store substance within a closed system.	

Section 2.2	Control of Environmental Exposure	
No exposure assessment presented for the environment.		

SECTION 3

EXPOSURE ESTIMATION

Revision Date 19.01.2021

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Section 3.1 - Health

The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 - Environment

No exposure assessment presented for the environment.

SECTION 4

GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

No exposure assessment presented for the environment.