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

1.1 Product identifier

Trade name	: AeroShell Fluid 41 (EU)
Product code	: 001F7541
UFI	: SV10-F0V7-K00R-M3EY

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

Use of the : Substance/Mixture	Mineral hydraulic fluid for aircraft., Due to its properties, it is also used in several industrial applications., For further details consult the AeroShell Book on www.shell.com/aviation.
Uses advised against :	This product must be used, handled and applied in accordance with the requirements of the equipment manufacturer's manuals, bulletins and other documentation. 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

	: Shell UK Oil Products Limited Shell Centre London SE1 7NA United Kingdom
Telephone Telefax	: (+44) 08007318888 :
Email Contact for Safety Data Sheet	: If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com

1.4 Emergency telephone number

: +44 (0) 151 350 4595 (This telephone number is available 24 hours per day, 7 days per week)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4, Inhalation Skin irritation, Category 2	H332: Harmful if inhaled. H315: Causes skin irritation.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters
Aspiration nazard, Category 1	airways.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

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Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :		!
Signal word :	Danger	• •
Hazard statements :	H332 H315 H304 H411	PHYSICAL HAZARDS: Not classified as a physical hazard according to CLP criteria. HEALTH HAZARDS: Harmful if inhaled. Causes skin irritation. May be fatal if swallowed and enters airways. ENVIRONMENTAL HAZARDS: Toxic to aquatic life with long lasting effects.
Precautionary statements :	Prevention: P261	Avoid breathing dust/ fume/ gas/ mist/
	1201	vapours/ spray.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
	Response:	
	P332 + P313	If skin irritation occurs: Get medical advice/ attention.
	P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
	Storage:	
	P405 Disposal:	Store locked up.
	P501	Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label: Contains Distillates (petroleum), hydrotreated middle.

2.3 Other hazards

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

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 : Blend of gas oil and additives.

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The full refinery history of this substance is known and it can be shown that the substance from which it is produced is not a carcinogen.

Hazardous components

Chemical name	CAS-No.	Classification	Concentration
	EC-No.	(REGULATION	(% w/w)
	Registration	(EC) No	
	number	1272/2008)	
Distillates	64742-46-7	Asp. Tox.1; H304	70 - 99
(petroleum),	265-148-2	Skin Irrit.2; H315	
hydrotreated middle	01-2119489867-12	Acute Tox.4; H332	
		Aquatic Chronic2;	
		H411	
Butylated	128-37-0	Aquatic Chronic1;	0.1 - 0.9
hydroxytoluene	204-881-4	H410	
	01-2119565113-46	Aquatic Acute1;	
		H400	

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 :	Call emergency number for your location / facility. Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
In case of skin contact :	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If needed, transport to the nearest medical facility for additional treatment. 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 :	Flush eye with copious quantities of water.

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	Remove contact lenses, if present an rinsing. If persistent irritation occurs, obtain r	-	
If swallowed	If swallowed, do not induce vomiting medical facility for additional treatme spontaneously, keep head below hip If any of the following delayed signs within the next 6 hours, transport to facility: fever greater than 101° F (38	: Call emergency number for your location / facility. If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.	
4.2 Most important sympto	ms and effects, both acute and delayed		
Symptoms	 If material enters lungs, signs and sy coughing, choking, wheezing, difficu congestion, shortness of breath, and The onset of respiratory symptoms r several hours after exposure. Skin irritation signs and symptoms m sensation, redness, swelling, and/or Defatting dermatitis signs and sympt burning sensation and/or a dried/cra Ingestion may result in nausea, vom 	Ity in breathing, chest I/or fever. nay be delayed for hay include a burning blisters. toms may include a cked appearance.	
	Local necrosis is evidenced by delay tissue damage a few hours following		
4.3 Indication of any immediate medical attention and special treatment needed			
Treatment :	: Call a doctor or poison control cente Treat symptomatically.	r for guidance.	
	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	:	Foam, water spray or fog. Dry chemical powder, carbon
		dioxide, sand or earth may be used for small fires only.

Version 1.12 Revision Date 10.03.2021 Print Date 11.03.2021 Unsuitable extinguishing : Do not use water in a jet. media 5.2 Special hazards arising from the substance or mixture Specific hazards during : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases firefighting (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds. 5.3 Advice for firefighters Special protective equipment : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if for firefighters large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469). Specific extinguishing : Use extinguishing measures that are appropriate to local methods circumstances and the surrounding environment.

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	 Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
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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.

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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 materials in order to prevent fires. 		
Product Transfer	: Proper grounding and bonding procedures should be used during all bulk transfer operations to avoid static accumulation.		
7.2 Conditions for safe storage, including any incompatibilities			
Other data	: Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers. Must be stored in a diked (bunded) area.		
	Store at ambient temperature.		
	Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.		
	The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.		
Packaging material	: Suitable material: For containers or container linings, use mild steel or high density polyethylene. Unsuitable material: PVC.		
Container Advice	: Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.		
7.3 Specific end use(s)			
Specific use(s)	: Not applicable		

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Butylated hydroxytoluene	128-37-0	TWA	10 mg/m3	GB EH40

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/

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.

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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. Do not ingest. If swallowed, then seek immediate medical assistance Eve washes and showers for emergency use. 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. Eve protection : Wear goggles for use against liquids and gas. 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. Approved to EU Standard EN166. Hand protection Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. 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. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough

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	time maybe acceptable so long as appr and replacement regimes are followed. a good predictor of glove resistance to a dependent on the exact composition of Glove thickness should be typically great depending on the glove make and mode	Glove thickness is not a chemical as it is the glove material. ater than 0.35 mm
Skin and body protection :	Wear chemical resistant gloves/gauntle risk of splashing, also wear an apron.	ts and boots. Where
Respiratory protection :	No respiratory protection is ordinarily re conditions of use. In accordance with good industrial hygie precautions should be taken to avoid br If engineering controls do not maintain a concentrations to a level which is adequi health, select respiratory protection equi specific conditions of use and meeting r Check with respiratory protective equipr Where air-filtering respirators are suitable appropriate combination of mask and fil Select a filter suitable for combined part and vapours [Type A/Type P boiling poi meeting EN14387 and EN143.	ene practices, reathing of material. airborne uate to protect worker ipment suitable for the relevant legislation. ment suppliers. ble, select an lter. ticulate/organic gases
Thermal hazards :	Not applicable	
Hygiene measures :	Exposure to this product should be reduced reasonably practicable. Reference shou Health and Safety Executive's publication Essentials".	uld be made to the
Environmental exposure contro	bls	
General advice :	Take appropriate measures to fulfill the relevant environmental protection legisla contamination of the environment by fol Section 6. If necessary, prevent undiss being discharged to waste water. Waste treated in a municipal or industrial waste before discharge to surface water. Local guidelines on emission limits for w must be observed for the discharge of envapour.	ation. Avoid llowing advice given in solved material from e water should be e water treatment plant volatile substances

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

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Appearance	: liquid	
Colour	: red	
Odour	: Slight hydrocarbon	
Odour Threshold	: Data not available	
рН	: Not applicable	
pour point	: <= -60 °CMethod: ASTM D97	
Initial boiling point and boiling range	: > 280 °Cestimated value(s)	
Flash point	: 95 °C Method: ASTM D93 (PMCC)	
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	: 0.873 (15 °C)	
Density	: 873 kg/m3 (15.0 °C) Method: ASTM D4052	
Solubility(ies)		
Water solubility	: negligible	
Solubility in other solvents	: Data not available	
Partition coefficient: n- octanol/water	: log Pow: > 6(based on information of	n similar products)
Auto-ignition temperature	: > 320 °C	
Decomposition temperature	: Data not available	
Viscosity		
Viscosity, dynamic	: Data not available	
Viscosity, kinematic	: 14.3 mm2/s (40.0 °C) Method: ASTM D445	

	.0)	
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	5.30 mm2/s (100 °C)	
	Method: ASTM D445	
	460 mm2/s (-40 °C)	
	Method: ASTM D445	
	2200 mm2/s (-54 °C)	
	Method: ASTM D445	
Explosive properties	: Not classified	
Ovidi-ing proportion		
Oxidizing properties	: Data not available	
9.2 Other information		
• · · · · ·		
Conductivity	: This material is not expected to be a	a static accumulator.

SECTION 10: Stability and reactivity

10.1 Reactivity

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

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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Basis for assessment	: Information given is based on data the toxicology of similar products. the data presented is representative whole, rather than for individual co	Unless indicated otherwise, ve of the product as a		
Information on likely routes of exposure	: Skin and eye contact are the prima although exposure may occur follo			
Acute toxicity				
Product:				
Acute oral toxicity	: LD50 rat: > 5,000 mg/kg Remarks: Low toxicity: Based on available data, the class	ification criteria are not met.		
	Remarks: Aspiration into the lungs pneumonitis which can be fatal.	may cause chemical		
Acute inhalation toxicity	: LC 50 Rat: > 1 - < 5 mg/l Exposure time: 4 h Remarks: Harmful if inhaled.			
Acute dermal toxicity	: LD 50 Rabbit: > 5,000 mg/kg Remarks: Low toxicity: Based on available data, the class	ification criteria are not met.		

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks: Slightly irritating to the eye., Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

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

Germ cell mutagenicity

Product:

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: 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.

Material	GHS/CLP Carcinogenicity Classification
Gas oils (petroleum), hydrodesulfurized	No carcinogenicity classification.
Distillates (petroleum), hydrotreated middle	No carcinogenicity classification.
Butylated hydroxytoluene	No carcinogenicity classification.

Material	Other Carcinogenicity Classification	
Butylated hydroxytoluene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans	

Reproductive toxicity

Product:

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

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

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Further information

Product:

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal., ALL used oil 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 Product:	:	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 >1 <= 10 mg/l Toxic
Toxicity to crustacean (Acute toxicity)	:	Remarks: LL/EL/IL50 >1 <= 10 mg/l Toxic

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Toxicity to algae/aquatic plants (Acute toxicity)	:	Remarks: LL/EL/IL50 >1 <= 10 mg/l Toxic	
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	
<u>Components:</u> Butylated hydroxytoluene :			
M-Factor (Short-term (acute) aquatic hazard)	:	1	
M-Factor (Long-term (chronic) aquatic hazard)	:	1	
12.2 Persistence and degradabili	ty		
Product:			
Biodegradability	:	Remarks: Not readily biodegradable., Majo inherently biodegradable, but contains con persist in the environment.	
12.3 Bioaccumulative potential			
Product:			
Bioaccumulation	:	Remarks: Contains constituents with the p bioaccumulate.	otential to
Partition coefficient: n- octanol/water	:	log Pow: > 6Remarks: (based on informati products)	on on similar
12.4 Mobility in soil			
Product:			
Mobility	:	Remarks: Liquid under most environmenta enters soil, it will adsorb to soil particles ar mobile. Remarks: Floats on water.	
12.5 Results of PBT and vPvB as	se	ssment	
Product:			
Assessment	:	This mixture does not contain any REACH substances that are assessed to be a PBT	0
12.6 Other adverse effects			
Product:			
Additional ecological information	:	Does not have ozone depletion potential, pozone creation potential or global warming	

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	is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use. Poorly soluble mixture., Causes physical fouling of aquatic organisms.		
SECTION 13: Disposal consid	lerations		
13.1 Waste treatment methods			
Product	: Recover or recycle if possible. It is the responsibility of the waste of toxicity and physical properties of the determine the proper waste classifier methods in compliance with applicate Do not dispose into the environment courses	he material generated to cation and disposal able regulations.	
	Waste product should not be allowe ground water, or be disposed of inte Waste, spills or used product is dar Waste arising from a spillage or tan disposed of in accordance with prev preferably to a recognised collector competence of the collector or cont established beforehand. Do not dispose of tank water botton drain into the ground. This will resu contamination.	o the environment. ngerous waste. nk cleaning should be vailing regulations, or contractor. The tractor should be ms by allowing them to	
	MARPOL - see International Conve Pollution from Ships (MARPOL 73/ technical aspects at controlling poll	78) which provides	
Contaminated packaging	: Dispose in accordance with prevaili to a recognized collector or contrac the collector or contractor should be Disposal should be in accordance v national, and local laws and regulat	tor. The competence of e established beforehand. with applicable regional,	
Local legislation			
Waste catalogue	:		
	EU Waste Disposal Code (EWC):		
Waste Code	:		

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	13 01 10*	
Remarks	: Disposal should be in accordance wi national, and local laws and regulation	· · · · · · · · · · · · · · · · · · ·
	Classification of waste is always the user.	responsibility of the end
	Hazardous Waste (England and Wal	es) Regulations 2005.

SECTION 14: Transport information

14.1 UN number	
ADR RID	: 3082 : 3082
IMDG IATA	: 3082 : 3082
14.2 Proper shipping name	
ADR	 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle)
RID	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle)
IMDG	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle)
ΙΑΤΑ	 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle)
14.3 Transport hazard class	
ADR	: 9
RID	: 9
IMDG IATA	: 9 : 9
14.4 Packing group	
ADR	
Packing group	: III
Classification Code	: M6
Hazard Identification Number Labels	: 90
RID	
Packing group	: 111
Classification Code	: M6
Hazard Identification Number	: 90

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Labels	: 9	
IMDG		
Packing group	: 111	
Labels	: 9	
ΙΑΤΑ		
Packing group	: 111	
Labels	: 9	
14.5 Environmental hazards		
ADR		
Environmentally hazardous	: yes	
RID		
Environmentally hazardous	: yes	
IMDG		
Marine pollutant	: yes	
14.6 Special precautions for user		
Remarks	: Special Precautions: Refer to Section 7, for special precautions which a user need needs to comply with in connection with	ds 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

.130	alery, health and environme	m	al regulations/registration specific for the substance of mixture
REACH - List of substances subject to (Annex XIV)		oje	ect to authorisation : Product is not subject to Authorisation under REACH.
Vo	platile organic compounds	:	0 %
Ot	ther regulations	:	The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
			Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases

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	and Dangerous Occurrences Regu Personal Protective Equipment Reg Protective Equipment at Work Reg Waste (England and Wales) Regula Control of Major Accident Hazards amended). Renewable Transport F (as amended). Energy Act 2011. En (England and Wales) Regulations 2 (England and Wales) Regulations 2 (England and Wales) Regulations 2 Planning (Hazardous Substances) regulations. The Environmental Pro Ozone-Depleting Substances) Reg Regulation (EC) No 1907/2006 of th and of the Council of 18 December Registration, Evaluation, Authorisat Chemicals (REACH), annex XIV. Regulation (EC) No 1907/2006 of th and of the Council of 18 December Registration, Evaluation, Authorisat Chemicals (REACH), annex XIV. Regulation (EC) No 1907/2006 of th and of the Council of 18 December Registration, Evaluation, Authorisat Chemicals (REACH), annex XVII. Directive 2004/37/EC on the protect risks related to exposure to carcino and its amendments. Directive 1994/33/EC on the protect work and its amendments. Council Directive 92/85/EEC on the pregnant workers and workers who or are breastfeeding and its amend	gulations 2002. Personal ulations 1992. Hazardous ations 2005(as amended). Regulations 1999 (as fuel Obligations Order 2007 nvironmental Permitting 2010 (as amended). Waste 2011 (as amended). Waste 2011 (as amended). Act 1990 and associated otection (Controls on gulations 2011. The European Parliament 2006 concerning the tion and Restriction of the European Parliament 2006 concerning the tion and Restriction of the of workers from the ogens or mutagens at work ction of young people at a introduction of measures safety and health at work of o have recently given birth

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

EINECS	:	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:
Acute toxicity, Category 4, H332	Expert judgement and weight of evidence determination.
Skin irritation, Category 2, H315	Expert judgement and weight of evidence determination.
Aspiration hazard, Category 1, H304	Expert judgement and weight of evidence determination.
Long-term (chronic) aquatic hazard, Category 2, H411	Expert judgement and weight of evidence determination.

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Full text of H-Statements

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	Acute to	xicity
Aquatic Acute		rm (acute) aquatic hazard
Aquatic Chronic		m (chronic) aquatic hazard
Asp. Tox.	•	on hazard
Skin Irrit.	Skin irrit	
Abbreviations and Acro		The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.
		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 DSL = Canada Domestic Substance List EC = European Commission EC50 = Effective Concentration fifty ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals ECHA = European Chemicals Agency EINECS = The European Inventory of Existing Commercial Chemical Substances
		EL50 = Effective Loading fifty
		ENCS = Japanese Existing and New Chemical Substances Inventory
		EWC = Éuropean Waste Code
		GHS = Globally Harmonised System of Classification and
		Labelling of Chemicals
		IARC = International Agency for Research on Cancer
		IATA = International Air Transport Association
		IC50 = Inhibitory Concentration fifty
		IL50 = Inhibitory Level fifty
		IMDG = International Maritime Dangerous Goods

SAFETY DATA SHEET

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

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	INV = Chinese Chemicals Inventory IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables KECI = Korea Existing Chemicals Inventory LC50 = Lethal Concentration fifty LD50 = Lethal Dose fifty per cent. LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading LL50 = Lethal Loading fifty MARPOL = International Convention for the Prevention of Pollution From Ships NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level OE_HPV = Occupational Exposure - High Production Volume PBT = Persistent, Bioaccumulative and Toxic PICCS = Philippine Inventory of Chemicals and Chemical Substances PNEC = Predicted No Effect Concentration REACH = Registration Evaluation And Authorisation Of Chemicals RID = Regulations Relating to International Carriage of Dangerous Goods by Rail SKIN_DES = Skin Designation STEL = Short term exposure limit TRA = Targeted Risk Assessment TSCA = US Toxic Substances Control Act TWA = Time-Weighted Average VPVB = very Persistent and very Bioaccumulative		
Further information			
Other information		A vertical bar () in the left margin from the previous version.	n indicates an amendment
		This product is classified as R65 damage if swallowed) respective swallowed and enters airways). T aspiration. The risk arising from a related to the physico-chemical p The risk can therefore be controll management measures tailored t exposure scenario is not present	ly H304 (May be fatal if The risk relates to potential for aspiration hazard is solely properties of the substance. led by implementing risk to this specific hazard. An
Identified Uses accordin Uses - Worker	g to f	ne Use Descriptor System	
Title	:	General use of lubricants and great machinery Industrial	ases in vehicles or
Uses - Worker		.	
Title	:	General use of lubricants and great machinery Professional	ases in vehicles or

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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.

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Exposure Scenario - Worker		
30000010300		
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: PROC 1, PROC 2, PROC 8b, PROC 9 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

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.
General exposures (closed systems)Use in closed process, no likelihood of exposure	No other specific measures identified.
Initial factory fill of equipmentUse in contained	No other specific measures identified.

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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 containers at dedicated facilities	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
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.

Section 2.2	Control of Environmental Exposure	
Amounts Used		
EU tonnage (tonnes per year):		2.63E+03
Fraction of EU tonnage used in region:		0.1

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Fraction of Regional tonnage used locally:	0.1
Frequency and Duration of Use	0.1
Emission Days (days/year):	300
Environmental factors not influenced by risk management	300
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	100
Negligible wastewater emissions as process operates without water	
contact.	
Release fraction to air from process (after typical onsite RMMs) :	5.00E-05
Release fraction to wastewater from process (after typical onsite	2.00E-11
RMMs and before (municipal) sewage treatment plant):	
Release fraction to soil from process (after typical onsite RMMs):	0
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process	
release estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air
emissions and releases to soil	1
Treat air emission to provide a typical removal efficiency of (%)	70
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
User sites are assumed to be provided with oil/water separators or	
equivalent and for waste water to be discharged via public sewer	
system.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage treatment (%)	9.28265E+01
Assumed domestic sewage treatment plant flow (m3/d)	2.00E+03
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) :	1.2420817E+05
Conditions and Measures related to external treatment of waste fo	r disposal
External treatment and disposal of waste should comply with applicable regulations.	local and/or regional
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations.	local and/or regional

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	

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Section 3.2 - Environment

Used ECETOC TRA model.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a sitespecific chemical safety assessment is required.

For further information see www.ATIEL.org/REACH_GES.

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Exposure Scenario - Wo 300000010301	orker
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: PROC 1, PROC 2, PROC 8a, PROC 8b, PROC 20 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

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 systemsUse in closed process, no likelihood of	No other specific measures identified.

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exposure	
Material transfersNon- dedicated facilityTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Avoid carrying out activities involving exposure for more than 4 hours Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilitiesHeat and pressure transfer fluids in dispersive, professional use but closed systems	Drain down system prior to equipment opening or maintenance. 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	Section 2.2 Control of Environmental Exposure		
Amounts Used			
EU tonnage (tonnes per year):		5.39E+03	
Fraction of EU tonnage used	in region:	0.1	
Fraction of Regional tonnage	used locally:	0.1	
Frequency and Duration of	Use		
Emission Days (days/year):		365	
Environmental factors not i	nfluenced by risk management		
Local freshwater dilution factor	Dr:	10	
Local marine water dilution fa	ctor:	100	
Other Operational Condition	ns affecting Environmental Exposure		
Negligible wastewater emission	ons as process operates without water		
contact.			
Release fraction to air from pr	ocess (after typical onsite RMMs) :		
	er from process (after typical onsite	5.00E-04	
RMMs and before (municipal) sewage treatment plant):			
Release fraction to soil from process (after typical onsite RMMs):		1E-03	
	easures at process level (source) to p	revent release	
Common practices vary acros	ss sites thus conservative process		
release estimates used.			
Technical onsite conditions and measures to reduce or limit discharges, air			
emissions and releases to s			
Prevent discharge of undissolved substance to or recover from onsite			
wastewater.			
Organisational measures to prevent/limit release from site			
Do not apply industrial sludge to natural soils.			
Sludge should be incinerated, contained or reclaimed.			

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Conditions and Measures related to municipal sewage treatment p	lant	
Assumed domestic sewage treatment plant flow (m3/d)	2.00E+03	
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) :	4.131E+01	
Estimated substance removal from wastewater via domestic sewage treatment (%)	9.28265E+01	
Conditions and Measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or regional regulations.		

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

Used ECETOC TRA model.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a sitespecific chemical safety assessment is required.

For further information see www.ATIEL.org/REACH_GES.