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SECTION 1. IDENTIFICATION

Product name	:	Shell Omala S2 G 220
Product code Manufacturer or supplier's d	: eta	001D7837 ii ls
Manufacturer/Supplier	:	Shell Oil Products US PO Box 4427 Houston TX 77210-4427 USA
SDS Request Customer Service	:	(+1) 877-276-7285
Emergency telephone numbers Spill Information Health Information	:	877-504-9351 877-242-7400

Recommended use of the chemical and restrictions on use Recommended use : Gear lubricant.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Based on available data this substance / mixture does not meet the classification criteria.

СПС	lahal	alamanta
бпэ	laper	elements

Hazard pictograms	: No Hazard Symbol required
Signal word	: No signal word
Hazard statements	 PHYSICAL HAZARDS: Not classified as a physical hazard under GHS criteria. HEALTH HAZARDS: Not classified as a health hazard under GHS criteria. ENVIRONMENTAL HAZARDS: Not classified as an environmental hazard under GHS criteria.
Precautionary statements	 Prevention: No precautionary phrases. Response: No precautionary phrases. Storage: No precautionary phrases. Disposal: No precautionary phrases.

Other hazards which do not result in classification

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

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Used oil may contain harmful impurities. Not classified as flammable but will burn.

The classification of this material is based on OSHA HCS 2012 criteria.

Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical	nature
onionilioui	nataro

: Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSOextract, according to IP346.

Hazardous components

Chemical name	Synonyms	CAS-No.	Concentration (%)
Amine phosphate	Amines, C12-14- alkyl, reaction prod- ucts with hexanol, phosphorus oxide (P2O5), phosphorus sulfide (P2S5) and propylene oxide	91745-46-9	< 0.9

SECTION 4. FIRST-AID MEASURES

General advice	:	Not expected to be a health hazard when used under normal conditions.
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 wa- ter and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
In case of eye contact	:	Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention.
If swallowed	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Most important symptoms and effects, both acute and delayed	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
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.

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Immediate medical attention,	:	Treat symptomatically.
special treatment		

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Foam, water spray or fog. Dry chemical powder, carbon diox- ide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	:	Do not use water in a jet.
Specific hazards during fire- fighting	:	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.
Specific extinguishing meth- ods	:	Use extinguishing measures that are appropriate to local cir- cumstances and the surrounding environment.
Special protective equipment for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if 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).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	:	Avoid contact with skin and eyes.
Environmental precautions	:	Use appropriate containment to avoid environmental contami- nation. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
		Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and 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.

: For guidance on selection of personal protective equipment

Additional advice

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	see Chapter 8 of this Safety Da For guidance on disposal of spi this Safety Data Sheet.	

SECTION 7. HANDLING AND STORAGE

Technical measures	:	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.
Precautions for 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 mate- rials in order to prevent fires.
Avoidance of contact	:	Strong oxidising agents.
Product Transfer	:	This material has the potential to be a static accumulator. Proper grounding and bonding procedures should be used during all bulk transfer operations.
Storage		
Other data	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.
		Store at ambient temperature.
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 tem- peratures because of possible risk of distortion.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components	CAS-No.	Value type	Control parame-	Basis
		(Form of	ters / Permissible	
		exposure)	concentration	
Oil mist, mineral	Not Assigned	TWA ((inhal-	5 mg/m3	US. ACGIH
		able frac-		Threshold
		tion))		Limit Values
		(Mist)	5 mg/m3	OSHA_TRA
			_	NS

Components with workplace control parameters

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TWA (Mist)	5 mg/m3	OSHA Z-1
TWA (Inhal-	5 mg/m3	ACGIH
able fraction)		

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

The level of protection and types of controls necessary will **Engineering measures** 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.

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Version 1.6 Revision Date: 06/01/2017 Print Date: 06/02/2017 Personal protective equipment Respiratory protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for the combination of organic gases and vapours [Type A/Type P boiling point >65°C (149°F)]. 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 time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Eye protection If material is handled such that it could be splashed into eyes, protective eyewear is recommended. Skin and body protection Skin protection is not ordinarily required beyond standard work clothes. It is good practice to wear chemical resistant gloves. Thermal hazards : Not applicable

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

Environmental exposure controls

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General advice	: Take appropriate measures to fe vant environmental protection le of the environment by following necessary, prevent undissolved charged to waste water. Waste municipal or industrial waste wa discharge to surface water. Local guidelines on emission lin must be observed for the dischar vapour.	egislation. Avoid contamination advice given in Chapter 6. If material from being dis- water should be treated in a tter treatment plant before nits for volatile substances

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid at room temperature.	
Colour	: brown	
Odour	: Slight hydrocarbon	
Odour Threshold	: Data not available	
рН	: Not applicable	
pour point	: -18 °C / -0.40 °FMethod: ISO 301	6
Initial boiling point and boiling range	: > 280 °C / 536 °Festimated value	(s)
Flash point	: 240 °C / 464 °F Method: ISO 2592	
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 / 68 °F) estimated value(s)	
Relative vapour density	: > 1estimated value(s)	
Relative density	: 0.899 (15 °C / 59 °F)	
Density	: 899 kg/m3 (15.0 °C / 59.0 °F) Method: ISO 12185	
Solubility(ies) Water solubility	: negligible	
Solubility in other solvents	: Data not available	

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Partition coefficient: n- octanol/water	: Pow: > 6(based on information o	n similar products)
Auto-ignition temperature	: > 320 °C / 608 °F	
Viscosity		
Viscosity, dynamic	: Data not available	
Viscosity, kinematic	: 220 mm2/s (40.0 °C / 104.0 °F) Method: ISO 3104	
	19.4 mm2/s (100 °C / 212 °F) Method: ISO 3104	
Explosive properties	: Not classified	
Oxidizing properties	: Data not available	
Conductivity	: This material is not expected to I	pe a static accumulator.
Decomposition temperature	: Data not available	

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
Chemical stability	:	Stable.
Possibility of hazardous reac- tions	:	Reacts with strong oxidising agents.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Strong oxidising agents.
Hazardous decomposition products	:	Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

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).
	whole, rather than for individual component(3).

Information on likely routes of exposure

Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

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Acute toxicity

Product:	
Acute oral toxicity	: LD50 (rat): > 5,000 mg/kg Remarks: Expected to be of low toxicity:
Acute inhalation toxicity	: Remarks: Not considered to be an inhalation hazard under normal conditions of use.
Acute dermal toxicity	: LD50 (Rabbit): > 5,000 mg/kg Remarks: Expected to be of low toxicity:

Skin corrosion/irritation

Product:

Remarks: Expected to be slightly irritating., Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Serious eye damage/eye irritation

Product:

Remarks: Expected to be slightly irritating.

Components:

Amine phosphate:

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

Respiratory or skin sensitisation

Product:

Remarks: Not expected to be a skin sensitiser.

Components:

Amine phosphate:

Remarks: Experimental data has shown that the concentration of potentially sensitising components present in this product does not induce skin sensitisation. May cause an allergic skin reaction in sensitive individuals.

Germ cell mutagenicity

Product:

: Remarks: Not considered a mutagenic hazard.

Carcinogenicity

Product:

Remarks: Not expected to be carcinogenic.

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 Internation-

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al Agency for Research on Cancer (IARC).

Reproductive toxicity

Product:

Remarks: Not expected to impair fertility., Not expected to be a developmental toxicant.

STOT - single exposure

Product:

Remarks: Not expected to be a hazard.

STOT - repeated exposure

Product:

Remarks: Not expected to be a hazard.

Aspiration toxicity

Product:

Not considered an aspiration hazard.

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: Slightly irritating to respiratory system.

SECTION 12. ECOLOGICAL INFORMATION

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 representa- tive of the product as a whole, rather than for individual com- ponent(s).(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Ecotoxicity	
Product:	
Toxicity to fish (Acute toxici-	
ty)	Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l

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Toxicity to daphnia and other aquatic invertebrates (Acute toxicity)	:	Remarks: Expected to be practic LL/EL/IL50 > 100 mg/l	ally non toxic:
Toxicity to algae (Acute tox- icity)	:	Remarks: Expected to be practic LL/EL/IL50 > 100 mg/l	ally non toxic:
Toxicity to fish (Chronic tox- icity)	:	Remarks: Data not available	
Toxicity to daphnia and other aquatic invertebrates (Chron- ic toxicity)	:	Remarks: Data not available	
Toxicity to bacteria (Acute toxicity)	:	Remarks: Data not available	
Persistence and degradabilit	y		
Product:			
Biodegradability	:	Remarks: Expected to be not rea Major constituents are expected ble, but contains components tha ment.	to be inherently biodegrada
Bioaccumulative potential			
Product:			
Bioaccumulation	:	Remarks: Contains components cumulate.	with the potential to bioac-
Mobility in soil			
Product:			
Mobility	:	Remarks: Liquid under most env If it enters soil, it will adsorb to so mobile.	
		Remarks: Floats on water.	
Other adverse effects no data available			
Product: Additional ecological infor- mation	:	Product is a mixture of non-volati expected to be released to air in Not expected to have ozone dep cal ozone creation potential or gl	any significant quantities. letion potential, photochem
		Poorly soluble mixture. May cause physical fouling of aq	uatic organisms

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Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	 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. Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local legislation Remarks	 Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14. TRANSPORT INFORMATION

National Regulations

US Department of Transportation Classification (49 CFR Parts 171-180)

Not regulated as a dangerous good

International Regulations

IATA-DGR

Not regulated as a dangerous good

IMDG-Code Not regulated as a dangerous good

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

Pollution category	: Not applicable
Ship type	: Not applicable
Product name	: Not applicable
Special precautions	: Not applicable

Special precautions for user

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Remarks	Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.	
Additional Information	: MARPOL Annex 1 rules apply f	or bulk shipments by sea.

SECTION 15. REGULATORY INFORMATION

California Prop 65	: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
The components of this proc EINECS	 act are reported in the following inventories: All components listed or polymer exempt. 	
EINECS	. All components listed of polymer exempt.	
TSCA	: All components listed.	
DSL	: All components listed.	

SECTION 16. OTHER INFORMATION

Further information

NFPA Rating (Health, Fire, Reac- 0, 1, 0 tivity)

indicates an amendment from the previous version. The standard abbreviations and acronyms used in this docu- ment 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 DSL = Canada Domestic Substance List EC = European Commission EC50 = Effective Concentration fifty ECETOC = European Center on Ecotoxicology and Toxicolo- gy Of Chemicals ECHA = European Chemicals Agency	

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	EINECS = The European Invent Chemical Substances EL50 = Effective Loading fifty ENCS = Japanese Existing and Inventory EWC = European Waste Code GHS = Globally Harmonised Sy Labelling of Chemicals IARC = International Agency for IATA = International Agency for IATA = International Air Transpo IC50 = Inhibitory Concentration IL50 = Inhibitory Level fifty IMDG = International Maritime ID INV = Chinese Chemicals Inven IP346 = Institute of Petroleum determination of polycyclic arom KECI = Korea Existing Chemica LC50 = Lethal Concentration fift LD50 = Lethal Concentration fift D50 = Lethal Loading/Effec LL50 = Lethal Loading fifty MARPOL = International Conve Pollution From Ships NOEC/NOEL = No Observed Eff served Effect Level OE_HPV = Occupational Expos PBT = Persistent, Bioaccumulat PICCS = Philippine Inventory of Substances PNEC = Predicted No Effect Co REACH = Registration Evaluatio Chemicals RID = Regulations Relating to Ir gerous Goods by Rail SKIN_DES = Skin Designation STEL = Short term exposure lim TRA = Targeted Risk Assessme TSCA = US Toxic Substances O TWA = Time-Weighted Average	tory of Existing Commercial New Chemical Substances stem of Classification and Research on Cancer ort Association fifty Dangerous Goods tory test method N° 346 for the natics DMSO-extractables als Inventory y nt. tive Loading/Inhibitory loading ntion for the Prevention of ffect Concentration / No Ob- ture - High Production Volume tive and Toxic Chemicals and Chemical incentration on And Authorisation Of nternational Carriage of Dan-
	vPvB = very Persistent and very	
Sources of key data used to compile the Safety Data Sheet	: The quoted data are from, but n sources of information (e.g. toxio Health Services, material suppli IUCLID date base, EC 1272 reg	cological data from Shell ers' data, CONCAWE, EU
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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.