Safety data sheet according to Regulation (EC) No 1907/2006, Annex II (last amended by Regulation (EU) 2020/878)

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

1.1 Product identifier

Marine Gear Oil GL4/GL5 80W-90

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

Relevant identified uses of the substance or mixture:
Gear lubricant

Uses advised against:
No information available at present.

1.3 Details of the supplier of the safety data sheet

GB

LIQUI MOLY GmbH
Jerg-Wieland-Str. 4
89081 Ulm-Lehr
Tel.: (+49) 0731-1420-0
Fax: (+49) 0731-1420-88

LIQUI MOLY UK
1310 Solihull Parkway
Birmingham Business Park
B37 7YB Solihull
Tel: +44 121 796 5365

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

GB

Landspitali- The National University Hospital of Iceland, tel. +354 543 2222 or 112 (valid only for Iceland)

Telephone number of the company in case of emergencies:
+49 (0) 700 / 24 112 112 (LMR)
+1 872 5888271 (LMR)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
PBT		EuH440-Accumulates in the environment and living organisms including in humans.

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)

Danger

EuH440-Accumulates in the environment and living organisms including in humans.

P201-Obtain special instructions before use. P273-Avoid release to the environment.
P391-Collect spillage.
P501-Dispose of contents / container to an approved waste disposal facility.

EUH208-Contains Reaction products of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched). May produce an allergic reaction.

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture contains a PBT substance (PBT = persistent, bioaccumulative, toxic).
The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

SECTION 3: Composition/information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

Polysulfides, di-tert-Bu	
Registration number (REACH)	01-2119540515-43-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	273-103-3
CAS	68937-96-2
content %	1-<5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Sens. 1B, H317 Aquatic Chronic 3, H412
Specific Concentration Limits and ATE	Skin Sens. 1B, H317: >=46 %

Baseoil - unspecified *	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	---
CAS	---
content %	0,1-2,5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Asp. Tox. 1, H304

Reaction products of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched)	
Registration number (REACH)	01-2119493620-38-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	931-384-6
CAS	---
content %	0,1-<2,5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411
Specific Concentration Limits and ATE	Eye Irrit. 2, H319: >50 % Skin Sens. 1B, H317: >=9,39 % ATE (oral): 2000 mg/kg

O,O,O-triphenyl phosphorothioate	**PBT-substance** **SVHC-substance**

Registration number (REACH)	01-2119979545-21-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	209-909-9
CAS	597-82-0
content %	0,25-<1
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Aquatic Chronic 1, H410 (M=10) PBT , EuH440

Impurities, test data and additional information may have been taken into account in classifying and labelling the product.
For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.

* The contained mineral oil can be described by one or more of the following numbers:

EINECS, ELINCS, NLP, REACH-IT List-No.	Registration number (REACH)	Chemical name
265-157-1	01-2119484627-25-XXXX	Distillates (petroleum), hydrotreated heavy paraffinic
265-169-7	01-2119471299-27-XXXX	Distillates (petroleum), solvent-dewaxed heavy paraffinic
265-158-7	01-2119487077-29-XXXX	Distillates (petroleum), hydrotreated light paraffinic
265-159-2	01-2119480132-48-XXXX	Distillates (petroleum), solvent-dewaxed light paraffinic

The substances named in this section are given with their actual, appropriate classification!
For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.
The addition of the highest concentrations listed here can result in a classification. Only when this classification is listed in Section 2 does it apply. In all other cases the total concentration is below the classification.

SECTION 4: First aid measures

4.1 Description of first aid measures
First-aiders should ensure they are protected!
Never pour anything into the mouth of an unconscious person!

Inhalation
Remove person from danger area.
Supply person with fresh air and consult doctor according to symptoms.

Skin contact
Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact
Remove contact lenses.
Wash thoroughly for several minutes using copious water. Seek medical help if necessary.
Keep Data Sheet available.

Ingestion
Rinse the mouth thoroughly with water.
Do not induce vomiting. Consult doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed
If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.
Allergic reaction possible.

4.3 Indication of any immediate medical attention and special treatment needed
Symptomatic treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
CO2
Foam
Dry extinguisher
Water jet spray

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:
Oxides of carbon
Oxides of nitrogen
Oxides of sulphur
Toxic gases
Possible build up of explosive/highly flammable vapour/air mixture.

5.3 Advice for firefighters

For personal protective equipment see Section 8.
In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
According to size of fire
Full protection, if necessary.
Cool container at risk with water.
Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.
Ensure sufficient ventilation, remove sources of ignition.
Avoid dust formation with solid or powder products.
Leave the danger zone if possible, use existing emergency plans if necessary.
Avoid contact with eyes or skin.
If applicable, caution - risk of slipping.

6.1.2 For emergency responders

See section 8 for suitable protective equipment and material specifications.

6.2 Environmental precautions

If leakage occurs, dam up.
Resolve leaks if this possible without risk.
Prevent from entering drainage system.
Prevent surface and ground-water infiltration, as well as ground penetration.
If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth, sawdust) and dispose of according to Section 13.
Oil binder

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Avoid formation of oil mist.
Ensure good ventilation.
Do not heat to temperatures close to flash point.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Avoid long lasting or intensive contact with skin.
Do not carry cleaning cloths soaked in product in trouser pockets.
Observe directions on label and instructions for use.
Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
Not to be stored in gangways or stair wells.
Store product closed and only in original packing.
Protect against moisture and store closed.

7.3 Specific end use(s)

No information available at present.
Observe the instructions for good working practice and the recommendations for risk assessment.
Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries, depending on the application (building materials, wood, chemistry, laboratory, leather, metal).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

GB **Chemical Name**	Oil mist, mineral	
WEL-TWA: 5 mg/m3 (Mineral oil, excluding metal working fluids, ACGIH)	WEL-STEL: ---	---
Monitoring procedures: - Draeger - Oil Mist 1/a (67 33 031)		
BMGV: ---	Other information: ---	

Polysulfides, di-tert-Bu

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,24	µg/l	
	Environment - marine		PNEC	0,024	µg/l	
	Environment - sediment, freshwater		PNEC	0,94	mg/kg dw	
	Environment - sediment, marine		PNEC	0,094	mg/kg dw	
	Environment - soil		PNEC	0,0181	mg/kg dw	
	Environment - sewage treatment plant		PNEC	4,51	mg/l	
	Environment - oral (animal feed)		PNEC	6,66	mg/kg feed	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,167	mg/kg bw/day	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1,67	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,58	mg/m3	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	3,29	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	4,67	mg/kg bw/day	

Baseoil - unspecified

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - oral (animal feed)		PNEC	9,33	mg/kg	
Consumer	Human - inhalation	Long term, local effects	DNEL	1,19	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,74	mg/kg	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,97	mg/kg	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	5,58	mg/m3	

Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	2,73	mg/m3	

Reaction products of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched)

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,001	mg/l	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	2,2	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	6,25	mg/kg bw/day	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,25	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	12,5	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	8,56	mg/m3	

O,O,O-triphenyl phosphorothioate

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,17	µg/l	
	Environment - marine		PNEC	0,017	µg/l	
	Environment - sediment, freshwater		PNEC	3,47	mg/kg dw	
	Environment - sediment, marine		PNEC	0,347	mg/kg dw	
	Environment - soil		PNEC	2,46	mg/kg dw	
	Environment - sewage treatment plant		PNEC	10	mg/l	
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,2	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,34	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,2	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,4	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	1,39	mg/m3	

GB - United Kingdom | WEL-TWA = Workplace Exposure Limit - Long-term exposure limit - 8-hour TWA (= time weighted average) reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/CE, 2017/164/EU). (9) = Respirable fraction (2004/37/CE, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| WEL-STEL = Workplace Exposure Limit - Short-term exposure limit - 15-minute reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information (EH40/2005 Workplace exposure limits (Fourth Edition 2020)): Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause

sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.
Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.
These are specified by e.g. EN 14042.
EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN ISO 16321-1).

Skin protection - Hand protection:
Chemical resistant protective gloves (EN ISO 374).
If applicable
Protective nitrile gloves (EN ISO 374).
Minimum layer thickness in mm:
0,35
Permeation time (penetration time) in minutes:
>= 480
Protective hand cream recommended.
The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.
The recommended maximum wearing time is 50% of breakthrough time.

Skin protection - Other:
Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:
If the workplace limit value is exceeded.
Filter A2 P2 (EN 14387), code colour brown, white
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Yellow, Brown

Odour:	Characteristic
Melting point/freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	There is no information available on this parameter.
Flammability:	Combustible.
Lower explosion limit:	There is no information available on this parameter.
Upper explosion limit:	There is no information available on this parameter.
Flash point:	200 °C
Auto-ignition temperature:	There is no information available on this parameter.
Decomposition temperature:	There is no information available on this parameter.
pH:	Mixture is non-soluble (in water).
Kinematic viscosity:	14,5 mm2/s (100°C)
Kinematic viscosity:	142 mm2/s (40°C)
Solubility:	Insoluble
Partition coefficient n-octanol/water (log value):	Does not apply to mixtures.
Vapour pressure:	There is no information available on this parameter.
Density and/or relative density:	0,9 g/ml
Relative vapour density:	There is no information available on this parameter.
Particle characteristics:	Does not apply to liquids.

9.2 Other information

Explosives:	There is no information available on this parameter.
Oxidising liquids:	There is no information available on this parameter.

SECTION 10: Stability and reactivity

10.1 Reactivity
The product has not been tested.

10.2 Chemical stability
Stable with proper storage and handling.

10.3 Possibility of hazardous reactions
No dangerous reactions are known.

10.4 Conditions to avoid
See also section 7.
Protect from humidity.
Open flame, ignition sources

10.5 Incompatible materials
See also section 7.
Avoid contact with strong oxidizing agents.

10.6 Hazardous decomposition products
See also section 5.2
No decomposition when used as directed.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008
Possibly more information on health effects, see Section 2.1 (classification).

Marine Gear Oil GL4/GL5 80W-90						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	ATE	>2000	mg/kg			calculated value
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:						n.d.a.
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.

Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.

Polysulfides, di-tert-Bu						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Skin Sens. 1B

Baseoil - unspecified						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Skin corrosion/irritation:						Not irritant
Serious eye damage/irritation:						Not irritant
Respiratory or skin sensitisation:						Not sensitizising, Analogous conclusion
Aspiration hazard:						Yes
Symptoms:						mucous membrane irritation

Reaction products of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched)						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	2000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	Analogous conclusion
Acute toxicity, by oral route:	LD50	> 3000	mg/kg	Rat	OECD 420 (Acute Oral toxicity - Fixe Dose Procedure)	
Acute toxicity, by oral route:	ATE	2000	mg/kg			
Acute toxicity, by dermal route:	LD50	5000	mg/kg	Rabbit	OECD 434 (Acute Dermal Toxicity – Fixed Dose Procedure)	
Acute toxicity, by inhalation:	LD50	> 22	mg/l/1h	Rat		VapoursOECD 433
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Corrosive
Serious eye damage/irritation:		>=50	%	Rabbit		Eye Dam. 1, Classification based on toxicological analyses.
Serious eye damage/irritation:		<50	%	Rabbit		Not irritant, Classification based on toxicological analyses.
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion
Germ cell mutagenicity:				Mouse	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative, Analogous conclusion

Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	150	mg/kg bw/d	Rat	OECD 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)	

O,O,O-triphenyl phosphorothioate

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	> 2000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant

11.2. Information on other hazards

Marine Gear Oil GL4/GL5 80W-90

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Endocrine disrupting properties:						Does not apply to mixtures.
Other information:						No other relevant information available on adverse effects on health.

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

Marine Gear Oil GL4/GL5 80W-90

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:							n.d.a.
12.1. Toxicity to daphnia:							n.d.a.
12.1. Toxicity to algae:							n.d.a.
12.2. Persistence and degradability:							n.d.a.
12.3. Bioaccumulative potential:							n.d.a.
12.4. Mobility in soil:							n.d.a.
12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine disrupting properties:							Does not apply to mixtures.
12.7. Other adverse effects:							No information available on other adverse effects on the environment.
Other information:							Aquatic Chronic 1, Aquatic Chronic 2, Aquatic Chronic 3 - No classification based on test data (analogous conclusion).

Polysulfides, di-tert-Bu

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to daphnia:	EC50	48h	63	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>100	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	13	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Not readily biodegradable
12.3. Bioaccumulative potential:	Log Kow		6				measured
Toxicity to bacteria:	EC50	3h	>10000	mg/l	activated sludge		

Baseoil - unspecified

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>100	mg/l	Pimephales promelas		
12.1. Toxicity to daphnia:	EC50	48h	>10000	mg/l	Daphnia magna		
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	>10	mg/l	Daphnia magna		
12.1. Toxicity to algae:	EC50	72h	>100	mg/l	Scenedesmus quadricauda		
12.2. Persistence and degradability:		28d	31	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Not readily biodegradable
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
12.6. Endocrine disrupting properties:							Negative

Reaction products of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched)

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	NOEC/NOEL	96h	3,2	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	LC50	96h	8,5	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EL50	21d	0,66	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	0,12	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EL50	48h	91,4	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to algae:	EC50	96h	6,4	mg/l	Selenastrum capricornutum	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	96h	1,7	mg/l	Selenastrum capricornutum	OECD 201 (Alga, Growth Inhibition Test)	

12.2. Persistence and degradability:		28d	7,4	%	activated sludge	OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Not readily biodegradable
12.2. Persistence and degradability:	DOC	28d	3,6	%	activated sludge		Not readily biodegradable
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	3h	~2433	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

O,O,O-triphenyl phosphorothioate

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>100	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	NOEC/NOEL	>60d	1,7	µg/l	Oncorhynchus mykiss	OECD 210 (Fish, Early-Life Stage Toxicity Test)	Aquatic Chronic 1
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	0,00724	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.2. Persistence and degradability:	DT50	>60d				OECD 309 (Aerobic Mineralisation in Surface Water - Simulation Biodegradation Test)	Not biodegradable
12.5. Results of PBT and vPvB assessment							PBT-substance

SECTION 13: Disposal considerations

13.1 Waste treatment methods

For the substance / mixture / residual amounts

Soaked polluted cloths, paper or other organic materials represent a fire hazard and should be controlled, collected and disposed of.
EC disposal code no.:
The waste codes are recommendations based on the scheduled use of this product.
Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)
13 02 05 mineral-based non-chlorinated engine, gear and lubricating oils
Recommendation:
Sewage disposal shall be discouraged.
Pay attention to local and national official regulations.
E.g. dispose at suitable refuse site.
E.g. suitable incineration plant.

For contaminated packing material

Pay attention to local and national official regulations.
15 01 01 paper and cardboard packaging

15 01 02 plastic packaging
15 01 04 metallic packaging
Empty container completely.
Uncontaminated packaging can be recycled.
Dispose of packaging that cannot be cleaned in the same manner as the substance.

SECTION 14: Transport information

General statements

Transport by road/by rail (ADR/RID)

14.1. UN number or ID number:	Not applicable
14.2. UN proper shipping name:	
Not applicable	
14.3. Transport hazard class(es):	Not applicable
14.4. Packing group:	Not applicable
14.5. Environmental hazards:	Not applicable
Tunnel restriction code:	Not applicable
Classification code:	Not applicable
LQ:	Not applicable
Transport category:	Not applicable

Transport by sea (IMDG-code)

14.1. UN number or ID number:	Not applicable
14.2. UN proper shipping name:	
Not applicable	
14.3. Transport hazard class(es):	Not applicable
14.4. Packing group:	Not applicable
14.5. Environmental hazards:	Not applicable
Marine Pollutant:	Not applicable
EmS:	Not applicable

Transport by air (IATA)

14.1. UN number or ID number:	Not applicable
14.2. UN proper shipping name:	
Not applicable	
14.3. Transport hazard class(es):	Not applicable
14.4. Packing group:	Not applicable
14.5. Environmental hazards:	Not applicable

14.6. Special precautions for user
Unless specified otherwise, general measures for safe transport must be followed.

14.7. Maritime transport in bulk according to IMO instruments
Non-dangerous material according to Transport Regulations.

SECTION 15: Regulatory information

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

Observe restrictions:
Comply with trade association/occupational health regulations.

Directive 2010/75/EU (VOC): ~ 4 %

National requirements/regulations on safety and health protection must be applied when using work equipment.

15.2 Chemical safety assessment
A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 2, 7, 16
These details refer to the product as it is delivered.
Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
PBT , EuH440	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents.
H317 May cause an allergic skin reaction.
EuH440 Accumulates in the environment and living organisms including in humans.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

PBT — Persistent, bioaccumulative and toxic
Skin Sens. — Skin sensitization
Aquatic Chronic — Hazardous to the aquatic environment - chronic
Asp. Tox. — Aspiration hazard
Acute Tox. — Acute toxicity - oral
Eye Irrit. — Eye irritation

Key literature references and sources for data:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.
Guidelines for the preparation of safety data sheets as amended (ECHA).
Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).
Safety data sheets for the constituent substances.
ECHA Homepage - Information about chemicals.
GESTIS Substance Database (Germany).
German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).
EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.
National Lists of Occupational Exposure Limits for each country as amended.
Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOX Adsorbable organic halogen compounds
approx. approximately
Art., Art. no. Article number
ASTM ASTM International (American Society for Testing and Materials)
ATE Acute Toxicity Estimate
BAM Bundesanstalt für Materialforschung und -prüfung (= Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BSEF The International Bromine Council
CAS Chemical Abstracts Service
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance

EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
EC European Community
ECHA European Chemicals Agency
ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ErCx, EμCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)
etc. et cetera
EU European Union
EVAL Ethylene-vinyl alcohol copolymer
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
Koc Adsorption coefficient of organic carbon in the soil
Kow octanol-water partition coefficient
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC (Code) International Bulk Chemical (Code)
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow Logarithm of octanol-water partition coefficient
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
mg/kg bw mg/kg body weight
mg/kg bw/d, mg/kg bw/day mg/kg body weight/day
mg/kg dw mg/kg dry weight
mg/kg wwt mg/kg wet weight
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute for Occupational Safety and Health (USA)
NLP No-longer-Polymer
NOEC, NOEL No Observed Effect Concentration/Level
OECD Organisation for Economic Co-operation and Development
org. organic
OSHA Occupational Safety and Health Administration (USA)
PBT Persistent, bioaccumulative and toxic
PE Polyethylene
PMT Persistent, mobile and toxic
PNEC Predicted No Effect Concentration
ppm parts per million
PVC Polyvinylchloride
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 6/7/8/9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds

vPvB Very persistent and very bioaccumulative
vPvM Very persistent and very mobile

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.
These statements were made by:
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