SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878

MULTIS MS 2

SDS # : 30823

previous revision date : 2024/08/13

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

1.1 Product identifier

Product name : MULTIS MS 2

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

Identified uses
Lubricating grease

1.3 Details of the supplier of the safety data sheet

TotalEnergies Lubrifiants
562 Avenue du Parc de L'ile
92029 Nanterre Cedex FRANCE
Tél: +33 (0)1 41 35 40 00
Fax: +33 (0)1 41 35 84 71
rm.msds-lubs@totalenergies.com

TotalEnergies Marketing Finland Oy
Teknobulevardi 3-5A
FI - 01530 Vantaa
Finland
Puh : (+358) 931 582 418
sm.nordic-reach@totalenergies.com

Contact

H.S.E

1.4 Emergency telephone number

National advisory body/Poison Center

Telephone number : Poison Information Center: +358 9 471 977

Supplier

Telephone number : Emergency phone: +44 1235 239670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

For more details about adverse physical, human health and environmental effects, see sections 9 to 12.

2.2 Label elements

Signal word	:	No signal word.
Hazard statements	:	H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements		
Prevention	:	P273 - Avoid release to the environment.
Response	:	Not applicable.
Storage	:	Not applicable.
Disposal	:	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	:	Contains Polysulfides, di-tert-Bu and Naphthenic acids, zinc salts. May produce an allergic reaction.
Labelling element REACh Annex XVII	:	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	:	This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration >= 0,1 %. This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACh Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.
Other hazards which do not result in classification	:	None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/substance	Identifiers	% (w/w)	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Distillates (petroleum), hydrotreated heavy paraffinic	REACH #: 01-2119484627-25 EC: 265-157-1 CAS: 64742-54-7	≥10 - ≤25	Not classified.	-	[2]
Distillates (petroleum), solvent-dewaxed heavy paraffinic	REACH #: 01-2119471299-27 EC: 265-169-7 CAS: 64742-65-0 Index: 649-474-00-6	≥10 - ≤25	Not classified.	-	[2]
Distillates (petroleum), hydrotreated heavy naphthenic	REACH #: 01-2119467170-45 EC: 265-155-0 CAS: 64742-52-5	≥10 - ≤25	Not classified.	-	[2]
Residual oils (petroleum), hydrotreated	REACH #: 01-2119489287-22 EC: 265-160-8 CAS: 64742-57-0	≤10	Not classified.	-	[2]
Residual oils (petroleum), solvent-dewaxed	REACH #: 01-2119480472-38 EC: 265-166-0	≤10	Not classified.	-	[2]

	CAS: 64742-62-7				
Limestone	EC: 215-279-6 CAS: 1317-65-3	≤10	Not classified.	-	[2]
Polysulfides, di-tert-Bu	EC: 273-103-3 CAS: 68937-96-2	≤2.2	Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Skin Sens. 1, H317: C ≥ 6% M [Acute] = 1 M [Chronic] = 1	[1]
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu) esters, zinc salts	REACH #: 01-2119948548-22 EC: 270-478-5 CAS: 68442-22-8	≤2.2	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	-	[1]
Distillates (petroleum), hydrotreated light paraffinic	REACH #: 01-2119487077-29 EC: 265-158-7 CAS: 64742-55-8	≤1	Asp. Tox. 1, H304	-	[1] [2]
Distillates (petroleum), hydrotreated light naphthenic	REACH #: 01-2119480375-34 EC: 265-156-6 CAS: 64742-53-6 Index: 649-466-00-2	≤1	Asp. Tox. 1, H304	-	[1] [2]
Naphthenic acids, zinc salts	REACH #: 01-2120783834-41 EC: 234-409-2 CAS: 12001-85-3	<1	Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411 **See Section 16 for the full text of the H statements declared above.**	-	[1]

Additional information : Mineral oil of petroleum origin. Product containing mineral oil with less than 3% DMSO extract as measured by IP 346

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact :

irritation
dryness
cracking

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products :

carbon monoxide
carbon dioxide
phosphorus oxides
sulfur oxides
Hydrogen sulfide
Mercaptans
Zinc oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

See Section 10 for incompatible materials before handling or use.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/substance	Exposure limit values
Distillates (petroleum), hydrotreated heavy paraffinic	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Distillates (petroleum), hydrotreated heavy naphthenic	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Residual oils (petroleum), hydrotreated	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Residual oils (petroleum), solvent-dewaxed	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Limestone	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Epäorgaaninen pöly]** TWA 8 hours: 10 mg/m³. Form: dust.
Distillates (petroleum), hydrotreated light paraffinic	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.
Distillates (petroleum), hydrotreated light naphthenic	**Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021) [Öljysumu]** TWA 8 hours: 5 mg/m³. Form: Mist.

Biological Limit Values (BLV)

No exposure indices known.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Advisory OEL : Mineral oil mist: USA: OSHA (PEL) TWA 5 mg/m3, NIOSH (REL) TWA 5 mg/m3, STEL 10 mg/m3, ACGIH (TLV) TWA 5 mg/m3 (highly refined)

DNELs/DMELs

Product/substance	Result
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu) esters, zinc salts	**DNEL - General population - Long term - Oral** 0.24 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 1.98 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal**

	5.71 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Inhalation** 8.05 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Dermal** 11.4 mg/kg bw/day Effects: Systemic
Naphthenic acids, zinc salts	**DNEL - General population - Long term - Oral** 0.17 ng/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 0.29 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Inhalation** 1.18 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal** 1.7 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 3.3 mg/kg bw/day Effects: Systemic

PNECs

Product/substance	Result
Polysulfides, di-tert-Bu	**Fresh water - Assessment Factors** 0.000255 mg/l **Marine water - Assessment Factors** 0.0000255 mg/l **Fresh water sediment - Equilibrium Partitioning** 1.06 mg/kg dwt **Marine water sediment - Equilibrium Partitioning** 0.106 mg/kg dwt **Soil - Equilibrium Partitioning** 0.211 mg/kg dwt **Sewage Treatment Plant** 45 mg/l
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu) esters, zinc salts	**Fresh water** 0.004 mg/l **Marine water** 0.0046 mg/l **Fresh water sediment** 0.04508 mg/kg dwt

	Marine water sediment 0.005 mg/kg dwt **Soil** 0.007 mg/kg dwt **Sewage Treatment Plant** 100 mg/l **Secondary Poisoning** 10.67 mg/kg
Naphthenic acids, zinc salts	**Fresh water sediment - Equilibrium Partitioning** 15.1 µg/kg dwt **Marine water sediment - Equilibrium Partitioning** 0.002 mg/kg dwt **Sewage Treatment Plant - Assessment Factors** 689.7 µg/l **Fresh water - Assessment Factors** 4 µg/l **Marine water - Assessment Factors** 400 ng/l **Soil - Equilibrium Partitioning** 0.001 mg/kg dwt

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : In case of contact through splashing: safety glasses with side-shields, EN 166.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Hydrocarbon-proof gloves
nitrile rubber
Fluorinated rubber
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
In case of prolonged contact with the product, it is recommended to wear gloves complying with ISO 21420 and EN 374 standards, protecting at least for 480

minutes and having a thickness of 0,38 mm at least. These values are indicative only. The level of protection is provided by the material of the glove, its technical characteristics, its resistance to the chemicals to be handled, the appropriateness of its use and its replacement frequency

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : None under normal use conditions. If these are not sufficient to maintain exposure below the OEL, suitable respiratory protection must be worn (Type A/P1).

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature (20°C / 68°F) and pressure (1013 hPa) unless otherwise indicated

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid. [grease]

Color : Dark grey.

Odor : Characteristic.

pH : Not applicable. Product is non-soluble (in water).

Melting point/freezing point : >180°C [EN ISO 3016]

Initial boiling point and boiling range : Technically not possible to measure

Flash point : Open cup: Not applicable.

Flammability : Not available.

Lower and upper explosion limit : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : 0.9 [EN ISO 12185]

Density : 0.9 g/cm³ [20°C] [EN ISO 12185]

Solubility(ies) :

Media	Result
water	Not soluble

Miscible with water : No.

Partition coefficient: n-octanol/water : >3.5

Auto-ignition temperature : Not applicable.

Decomposition temperature : >180°C

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C): Not applicable.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

No other relevant physical and chemical parameters for the safe use of the product

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : Stable under recommended storage and handling conditions (see Section 7).

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials : Strong oxidizing agents

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product/substance	Result
Polysulfides, di-tert-Bu	**Rat - Oral - LD50** >2000 mg/kg **Rat - Dermal - LD50** >2000 mg/kg
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu) esters, zinc salts	**Rat - Oral - LD50** >2000 mg/kg EPA **Rabbit - Dermal - LD50** >2000 mg/kg OECD Acute Dermal Toxicity
Naphthenic acids, zinc salts	**Rat - Oral - LD50** 4920 mg/kg **Rabbit - Dermal - LD50** 2500 mg/kg

Acute toxicity estimates

Product/substance	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Naphthenic acids, zinc salts	4920	2500	N/A	N/A	N/A

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

Skin corrosion/irritation

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

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met. The supplier of one or more of the components contained within this formulation has indicated that he has data on the components and/or similar mixtures, which confirms that at the concentration used, classification is not required.

Respiratory corrosion/irritation

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

Respiratory or skin sensitization

Skin

Based on available data, the classification criteria are not met. Contains sensitizer. May produce an allergic reaction.

Respiratory

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

Germ cell mutagenicity

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

Carcinogenicity

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

Reproductive toxicity

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

Specific target organ toxicity (single exposure)

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

Specific target organ toxicity (repeated exposure)

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

Aspiration hazard

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

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact	:	No known significant effects or critical hazards.
Inhalation	:	No known significant effects or critical hazards.
Skin contact	:	Defatting to the skin. May cause skin dryness and irritation.
Ingestion	:	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	No specific data.
Inhalation	:	No specific data.
Skin contact	:	irritation dryness cracking
Ingestion	:	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Potential chronic health effects

Product/substance	Result
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu) esters, zinc salts	**Sub-acute - Rat - Oral - NOAEL** OECD [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test] 160 mg/kg

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

Harmful to aquatic life with long lasting effects.

12.1 Toxicity

Product/substance	Result
Polysulfides, di-tert-Bu	**Acute - LC50** Fish - *Danio rerio* >0.088 mg/l [96 hours] **Acute - EC50** Daphnia 0.24 mg/l [48 hours] **Acute - EC50** Algae - *Pseudokirchneriella subcapitata* 0.838 mg/l [72 hours]
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu) esters, zinc salts	**Acute - EC50** Algae - *Scenedesmus subspicatus* OECD [201] 24 mg/l [72 hours] **Acute - LC50** Fish 4.5 mg/l [96 hours] **Acute - EC50** Daphnia - *Daphnia Magna* OECD [202] 23 mg/l [48 hours] **Acute - NOEC** Daphnia - *Daphnia Magna* 0.4 mg/l [21 days]
Naphthenic acids, zinc salts	**Acute - EL50 - Fresh water**

Daphnia
OECD [202]
35 mg/l [48 hours]
Effect: Mobility

Acute - EL50 - Fresh water
Algae - *Pseudokirchneriella subcapitata*
OECD [201]
4 mg/l [72 hours]
Effect: (growth rate)

Acute - LL50 - Fresh water
Fish - *Cyprinus carpio*
OECD [203]
>100 mg/l [96 hours]
Effect: Mortality

Based on available data, the classification criteria are met.

12.2 Persistence and degradability

Product/substance	Aquatic half-life	Photolysis	Biodegradability
Polysulfides, di-tert-Bu	-	-	Not readily
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu) esters, zinc salts	-	-	Not readily
Naphthenic acids, zinc salts	-	-	Not readily

12.3 Bioaccumulative potential

Product/substance	$LogK_{ow}$	BCF	Potential
MULTIS MS 2	>3.5	-	Low
Polysulfides, di-tert-Bu	5.6	-	High
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu) esters, zinc salts	1.67	-	Low
Naphthenic acids, zinc salts	0.8	-	Low

12.4 Mobility in soil

Soil/Water partition coefficient

Not available.

Results of PMT and vPvM assessment

Product/substance	PMT	P	M	T	vPvM	vP	vM
Polysulfides, di-tert-Bu	No	No	No	No	No	No	No
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu) esters, zinc salts	No	No	No	No	No	No	No
Naphthenic acids, zinc salts	No	No	No	No	No	No	No

Mobility : Not available.

Mobility in soil : Given its physical and chemical characteristics, the product has no soil mobility. The product is insoluble and floats on water. Loss by evaporation is limited

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1272/2008 [CLP]

Product/substance	PBT	P	B	T	vPvB	vP	vB
Polysulfides, di-tert-Bu	No	No	No	No	No	No	No
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu) esters, zinc salts	No	No	No	No	No	No	No
Naphthenic acids, zinc salts	No	No	No	No	No	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Should not be released into the environment.

Hazardous waste : Yes.

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: 12 01 12*

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	ICAO/IATA
14.1 UN number or ID number	Not regulated.	9005	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN (Polysulfides, di-tert-Bu, Phosphorodithioic acid, mixed O,O-bis	-	-

		(2-ethylhexyl and iso-Bu) esters, zinc salts)		
14.3 Transport hazard class(es)	-	9	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	Yes.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Additional information

ADN : The product is only regulated as a dangerous good when transported in tank vessels.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Labeling : Not applicable.

Other EU regulations

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Explosive precursors : Not applicable.

Ozone depleting substances (EU 2024/590)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

NACE	:	Not available.
UC62	:	Not available.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia inventory (AIIC)	:	Not determined.
Canada inventory (DSL/NDSL)	:	All components are listed or exempted.
China inventory (IECSC)	:	All components are listed or exempted.
Europe inventory (EC)	:	All components are listed or exempted.
Japan inventory	:	**Japan inventory (CSCL)**: All components are listed or exempted. **Japan inventory (ISHL)**: Not determined.
New Zealand Inventory of Chemicals (NZIoC)	:	At least one component is not listed.
Philippines inventory (PICCS)	:	Not determined.
Korea inventory (KECI)	:	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	:	All components are listed or exempted.
Thailand inventory	:	Not determined.
Turkey inventory	:	Not determined.
United States inventory (TSCA 8b)	:	All components are listed or exempted.
Vietnam inventory	:	Not determined.

The information stated in this section relates solely to the conformity of the chemical product with the countries Inventories. The information used to confirm the inventory status of this product may be based on additional data to the chemical composition shown in Section 3. Other regulations may apply for importation or marketing authorizations.

15.2 Chemical Safety Assessment : Risk management measures and safety conditions of use are included in the relevant sections of the SDS

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ACGIH = American Conference of Governmental Industrial Hygienists
ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
B = Bioaccumulative
BCF = Bioconcentration Factor
DNEL = Derived No Effect Level
DMEL = Derived Minimal Effect Level
DMSO = Dimethyl Sulfoxide
EC50 = Half maximal effective concentration
EL50 = median Effective Loading
EUH statement = CLP-specific Hazard statement
HSE = Health, Safety and Environment
IATA = International Air Transport Association
IC50 = Half maximal inhibitory concentration
IDHL = Immediately dangerous to life or health
IMDG = International Maritime Dangerous Goods
IMO = International Maritime Organization
LC50 = Median lethal concentration
LD50 = Median lethal dose
LL50 = median Lethal Loading
LogKow = logarithm of the octanol/water partition coefficient
M = Mobile
N/A = Not available
NIOSH = National Institute of Occupational Safety and Health
NOAEL = No Observed Adverse Effect Level
NOEC No Observed Effect Concentration
NOEL = No Observed Effect Level
NOELR = No observed Effect Loading Rate
OECD = Organisation for Economic Co-operation and Development
OEL = Occupational Exposure Limit
P = Persistent
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
POP = Persistent Organic Pollutants
QSAR = Quantitative Structure–Activity Relationship
REL = Recommanded Exposure Limit
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
SGG = Segregation Group
STEL = Short Term Exposure Limit
T = Toxic
TLV = Threshold Limit Value
TWA = Time Weight Average
vB = Very Bioaccumulative
vM = Very Mobile
VOC = Volatile Organic Compound
vP = Very Persistent
vPvB = Very Persistent and Very Bioaccumulative
vPvM = Very Persistent and Very Mobile
UFI = Unique Formula Identifier
UVCB Substance of unknown or Variable composition, Complex reaction products or Biological material

SECTION 16: Other information

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
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.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITIZATION - Category 1
Skin Sens. 1B	SKIN SENSITIZATION - Category 1B

Additionnal details on the supplier of the product

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SECTION 16: Other information

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.