SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH)

MULTIS COMPLEX EP 2

SDS # : 30935

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

1.1 Product identifier

Product name : MULTIS COMPLEX EP 2

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

Identified uses
Formulation additives, lubricants and greases - Industrial General use of lubricants and greases in vehicles or machinery - Industrial Use of lubricants and greases in open systems - Industrial Lubricating grease

1.3 Details of the supplier of the safety data sheet

TotalEnergies Lubrifiants
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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 Deutschland GmbH
Jean-Monnet-Straße 2
10557 BERLIN
DEUTSCHLAND
Tel: +49 (0)30 2027 60

msds@totalenergies.com

Contact

HSE : + 49 (0) 30/ 2027-9429

1.4 Emergency telephone number

National advisory body/Poison Center

Telephone number : Giftnotruf Berlin, Tel.+49 (0)30 19240 (24 h erreichbar, Beratung in Deutsch und Englisch

Supplier

Telephone number : TOTAL Emergency number: +49 89 220 61012

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.

See Section 11 for more detailed information on health effects and symptoms.

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 Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration >= 0,1 %.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% (w/w)	Regulation (EC) No. 1272/2008 [CLP]	Type
Phosphorodithioic acid, mixed O, O-bis(iso-Bu and pentyl) esters, zinc salts	REACH #: 01-2119493628-22 EC: 270-608-0 CAS: 68457-79-4	≤3	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1] [2]
dilithium azelate	REACH #: 01-2120119814-57 EC: 254-184-4 CAS: 38900-29-7	≤3	Acute Tox. 4, H302	[1]
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	REACH #: 01-2119493620-38 EC: 931-384-6	<1	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411	[1]
(Z)-N-9-octadecenylpropane-1,3-diamine	REACH #: 01-2119487002-46 EC: 230-528-9 CAS: 7173-62-8	<0.1	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT RE 1, H372 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=1)	[1]
C16-18-(even numbered, saturated and unsaturated)-	REACH #: 01-2119473797-19	≤0.1	Acute Tox. 4, H302 Skin Corr. 1B, H314	[1]

alkylamines	EC: 627-034-4 CAS: 1213789-63-9		Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) **See Section 16 for the full text of the H statements declared above.**	

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
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern
[6] Additional disclosure due to company policy

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. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
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 : 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 dioxide
carbon monoxide
phosphorus oxides
nitrogen oxides
sulfur oxides
Hydrogen sulfide
Mercaptans
Zinc oxides
metal oxide/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. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

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 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.

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. See Section 10 for incompatible materials before handling or use.

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
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	**DFG MAK-values list (Germany, 8/2020).** TWA: 2 mg/m³ 8 hours. Form: inhalable fraction PEAK: 4 mg/m³, 4 times per shift, 15 minutes. Form: inhalable fraction PEAK: 0.4 mg/m³, 4 times per shift, 15 minutes. Form: respirable fraction TWA: 0.1 mg/m³ 8 hours. Form: respirable fraction

Reportable hazardous constituent(s) contained in UVCB and/or multi-constituent substance(s) complying with the classification criteria and/or with an exposure limit (OEL)

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. 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	Type	Exposure	Value	Population	Effects
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	DNEL	Long term Oral	0.24 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	2.06 mg/m³	General population	Systemic
	DNEL	Long term Dermal	5.93 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	8.13 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	11.87 mg/kg bw/day	Workers	Systemic
dilithium azelate	DNEL	Long term Dermal	0.172 mg/cm²	Workers	Local
	DNEL	Long term Dermal	0.023 mg/cm²	General population	Local
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines,	DNEL	Long term Dermal	12.5 mg/kg	Workers	Systemic

C12-14- tert-alkyl	DNEL	Long term Inhalation	4.28 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	6.25 mg/kg	General population	Systemic
	DNEL	Long term Inhalation	1.09 mg/m³	General population	Systemic
	DNEL	Long term Oral	0.25 mg/ day	General population	Systemic
	DNEL	Long term Dermal	0.16 mg/ cm²	Workers	Local
(Z)-N-9-octadecenylpropane-1,3-diamine	DNEL	Long term Dermal	0.01 mg/ kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.035 mg/ m³	Workers	Systemic
C16-18-(even numbered, saturated and unsaturated)-alkylamines	DNEL	Long term Oral	40 µg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.38 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	1 mg/m³	Workers	Local
	DNEL	Short term Inhalation	1 mg/m³	Workers	Local
	DNEL	Long term Inhalation	0.035 mg/ m³	General population	Systemic
	DNEL	Long term Dermal	0.09 mg/ kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	0.06 %	Workers	Local

PNECs

Product/ingredient name	Compartment Detail	Name	Method Detail
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	Fresh water	1.9 mg/l	-
	Marine water	1.9 mg/l	-
	Sewage Treatment Plant	39 mg/l	-
	Fresh water sediment	33 mg/kg	-
	Marine water sediment	33 mg/kg	-
dilithium azelate	Fresh water	0.023 mg/l	-
	Marine water	0.0023 mg/l	-
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14-tert-alkyl	Fresh water	2.4 µg/l	-
	Marine water	240 ng/l	-
	Fresh water sediment	12.9 µg/kg dwt	-
	Marine water sediment	1.29 µg/kg dwt	-
	Soil	1.17 µg/kg dwt	-
	Sewage Treatment Plant	24.33 mg/l	-
	Secondary Poisoning	10 mg/kg	-
(Z)-N-9-octadecenylpropane-1,3-diamine	Fresh water	0.01 mg/l	-
	Marine water	0.001 mg/l	-
	Fresh water sediment	1.72 mg/kg dwt	-
	Marine water sediment	0.172 mg/kg dwt	-
	Soil	10 mg/kg dwt	-
	Sewage Treatment Plant	0.251 mg/l	-
C16-18-(even numbered, saturated and	Marine water	0.000026 mg/l	-

unsaturated)-alkylamines	Fresh water sediment Marine water sediment Soil Sewage Treatment Plant	3.76 mg/kg dwt 0.376 mg/kg dwt 10 mg/kg 0.55 mg/l	- - - -

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 : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: 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.

Other skin protection : Appropriate footwear and any additional skin protection measures 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 : Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces In case of inadequate ventilation wear respiratory protection: Type A/P1 Warning ! filters have a limited use duration The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses

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	:	Solid.
Color	:	Red.
Odor	:	Characteristic.
Odor threshold	:	Not available.
pH	:	Not applicable.
Melting point/freezing point	:	Not available.
Initial boiling point and boiling range	:	Not available.
Flash point	:	Open cup: Not applicable.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Upper/lower flammability or explosive limits	:	Not applicable.
Vapor pressure	:	Not available.
Vapor density	:	Not applicable.
Relative density	:	0.9
Density	:	0.9 g/cm³ [20°C]
Solubility(ies)	:	Insoluble in the following materials: cold water and hot water.
Miscible with water	:	No.
Partition coefficient: n-octanol/ water	:	Not applicable.
Auto-ignition temperature	:	Not applicable.
Decomposition temperature	:	Not available.
Viscosity	:	Kinematic (40°C): Not applicable.
Explosive properties	:	Not available.
Oxidizing properties	:	Not applicable

Particle characteristics

Median particle size	:	Not available.

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 : No specific data.

10.5 Incompatible materials : Strong oxidizing agents

10.6 Hazardous decomposition products : carbon dioxide
carbon monoxide
phosphorus oxides
nitrogen oxides
sulfur oxides
Hydrogen sulfide
Mercaptans
Zinc oxides
metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/substance	Result	Species	Dose	Exposure	Test
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	LD50 Dermal	Rabbit	>20 g/kg	-	OECD 402 Acute Dermal Toxicity
	LD50 Oral	Rat	3.6 g/kg	-	-
	LD50 Oral	Rat	2500 mg/kg	-	OECD 401
dilithium azelate	LD50 Dermal	Rat	>2000 mg/kg	-	-
	LD50 Oral	Rat	301 mg/kg	-	-
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	LC50 Inhalation Dusts and mists	Rat	5.1 mg/l	4 hours	-
	LC50 Inhalation Vapor	Rat	80.4 mg/l	1 hours	-
	LC50 Inhalation Vapor	Rat	20.1 mg/l	4 hours	-
	LD50 Dermal	Rabbit	2201 mg/kg	-	-
	LD50 Oral	Rat	2000 mg/kg	-	OECD 401
(Z)-N-9-octadecenylpropane-1,3-diamine	LD50 Oral	Rat - Female	>300 mg/kg	-	OECD 423 Acute Oral toxicity - Acute Toxic Class Method
C16-18-(even numbered,	LC50 Inhalation Dusts	Rat - Male	>0.099 mg/l	1 hours	OECD

saturated and unsaturated)-alkylamines	and mists				
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-	OECD 402
	LD50 Oral	Rat - Male, Female	1689 mg/kg	-	OECD 401

Conclusion/Summary : Based on available data, the classification criteria are not met.

Acute toxicity estimates

Product/substance	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
MULTIS COMPLEX EP 2	28130.8	N/A	N/A	N/A	N/A
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	3600	N/A	N/A	N/A	N/A
dilithium azelate	301	N/A	N/A	N/A	N/A
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	2000	2201	N/A	20.1	5.1
(Z)-N-9-octadecenylpropane-1,3-diamine	500	N/A	N/A	N/A	N/A
C16-18-(even numbered, saturated and unsaturated)-alkylamines	1689	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/substance	Result	Species	Score	Exposure	Test
(Z)-N-9-octadecenylpropane-1,3-diamine	Skin - Severe irritant	Rabbit	-	4 hours	OECD 404 Acute Dermal Irritation/ Corrosion
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Skin - Visible necrosis	Rabbit	-	-	OECD 404
	Eyes - Severe irritant	Rabbit	-	-	OECD 405

Conclusion/Summary

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

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

Sensitization

Product/substance	Route of exposure	Species	Result
C16-18-(even numbered, saturated and unsaturated)-alkylamines	skin	Guinea pig	Not sensitizing

Conclusion/Summary :

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

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

Mutagenicity

Product/substance	Test	Experiment	Result
(Z)-N-9-octadecenylpropane-1,3-diamine	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	OECD 473 *In vitro* Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
C16-18-(even numbered, saturated and unsaturated)-alkylamines	OECD 471	Experiment: In vitro Subject: Bacteria	Negative

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Reproductive toxicity

Product/substance	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
(Z)-N-9-octadecenylpropane-1,3-diamine	-	Negative	Negative	Rat	Oral	-
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Negative	Negative	Negative	Rat - Male, Female	Oral	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Teratogenicity

Product/substance	Result	Species	Dose	Exposure
(Z)-N-9-octadecenylpropane-1,3-diamine	Negative - Oral	Rabbit	9 mg/kg NOAEL	-
	Negative - Oral	Rat	1.25 mg/kg NOAEL	-
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Negative - Oral	Rabbit - Male, Female	>30 mg/kg NOAEL	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Product/substance	Category	Route of exposure	Target organs
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/substance	Category	Route of exposure	Target organs
(Z)-N-9-octadecenylpropane-1,3-diamine	Category 1	-	-
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Category 2	-	-

Aspiration hazard

Product/substance	Result
C16-18-(even numbered, saturated and unsaturated)-alkylamines	ASPIRATION HAZARD - Category 1

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 : Adverse symptoms may include the following:
irritation
dryness
cracking

Ingestion : No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/substance	Result	Species	Dose	Exposure
(Z)-N-9-octadecenylpropane-1,3-diamine	Sub-chronic NOAEL Oral	Rat	0.4 mg/kg	-
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Sub-acute NOAEL Oral	Rat - Male, Female	3.25 mg/kg	-
	Sub-acute LOAEL Dermal	Rat - Male, Female	12.5 mg/kg	-

Conclusion/Summary : Not available.

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.

SECTION 12: Ecological information

12.1 Toxicity

Product/substance	Result	Species	Exposure	Test
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	Acute EC50 10 mg/l	Daphnia - Daphnia magna	48 hours	OECD 202
	Acute LC50 32 mg/l	Algae - Scenedesmus subspicatus	72 hours	OECD 201
	Acute LC50 5.3 mg/l	Fish - Oncorhynchus mykiss	96 hours	OECD 203
	Acute NOEC 0.8 mg/l	Daphnia - Daphnia magna	21 days	-
dilithium azelate	Acute LC50 >100 mg/l	Algae	72 hours	-
	Acute LC50 >100 mg/l	Daphnia	48 hours	-
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	Acute EC50 6.4 mg/l	Algae - Pseudokirchneriella subcapitata	96 hours	OECD 201
	Acute EL50 91.4 mg/l	Crustaceans - Daphina Magna	48 hours	OECD 202
	Acute LL50 24 mg/l	Fish - Oncorhynchus mykiss	96 hours	OECD 203
	Chronic NOEC 1.7 mg/l	Algae - Pseudokirchneriella subcapitata	96 hours	OECD 201
	Chronic NOEL 0.12 mg/l	Crustaceans - Daphina Magna	21 days	OECD 211
(Z)-N-9-octadecenylpropane-1,3-diamine	Acute EC50 0.01 to 0.1 mg/l	Algae - Desmodesmus subspicatus	72 hours	OECD 201
	Acute EC50 0.01 to 0.1 mg/l	Daphnia - Daphina Magna	48 hours	OECD 202
	Chronic NOEC 0.0011 mg/l	Daphnia - Daphina Magna	48 hours	OECD 211
C16-18-(even numbered, saturated and unsaturated)-alkylamines	Acute EC50 0.08 mg/l	Algae	72 hours	-
	Acute EC50 0.011 mg/l	Daphnia - Daphnia magna	48 hours	-
	Acute EC50 14 to 490.1 mg/l	Micro-organism	3 hours	-
	Acute LC50 0.06 mg/l	Fish	96 hours	-
	Chronic NOEC 0.013 mg/l	Daphnia - Daphnia magna	21 days	-

Conclusion/Summary : 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

12.2 Persistence and degradability

Product/substance	Test	Result	Dose	Inoculum
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	STDMETH, ASTM and USEPA	3 % - Not readily - 28 days	-	Activated sludge

Conclusion/Summary : Not available.

Product/substance	Aquatic half-life	Photolysis	Biodegradability
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	-	-	Not readily
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	-	-	Not readily
(Z)-N-9-octadecenylpropane-1,3-diamine	-	-	Readily
C16-18-(even numbered, saturated and unsaturated)-alkylamines	-	-	Readily

12.3 Bioaccumulative potential

Product/substance	$LogK_{ow}$	BCF	Potential
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	0.69	-	low
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	0.3 to 7.1	-	low
(Z)-N-9-octadecenylpropane-1,3-diamine	0.03	0.5	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

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

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration >= 0,1 %.

12.6 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. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

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/ID No	Not regulated.	9005	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN (C16-18-(even numbered, saturated and unsaturated)-alkylamines)	-	-
14.3 Transport hazard class(es)	-	9	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	Yes.	No.	No.

Additional information

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

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.

14.7 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 : Not applicable.

Other EU regulations

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

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

Ozone depleting substances (1005/2009/EU)

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

Product/ingredient name	List name	Name on list	Classification	Notes
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	DFG MAK-values list	Zinc and its inorganic compounds (inhalable fraction) / (respirable fraction)	Listed	-

Storage class (TRGS 510) : 11

Hazardous incident ordinance

This product is not controlled under the Germany Hazardous Incident Ordinance.

Hazard class for water	:	1
Technical instruction on air quality control	:	TA-Luft Number 5.2.5: 86.6% TA-Luft Number 5.2.1: 10.6% TA-Luft Class I - Number 5.2.5: 2.6%
National regulations	:	Waste Oil Ordinance (AltölV) §7: This oil should be taken to a waste oil collection point after use. Improper disposal of waste oil harms the environment! Admixture of foreign substances such as solvents, brake fluids and coolants prohibited
Employment law	:	Law on the protection of young workers Regulation on the complementary implementation of the EC Directive on Maternity Protection (MuSchRiV - Maternity Protection Directive Regulation)

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.

LU - Luxembourg prohibited chemicals in the workplace

Not listed.

Inventory list

Australia inventory (AIIC)	:	All components are listed or exempted.
Canada inventory (DSL/NDSL)	:	All components are listed or exempted.
China inventory (IECSC)	:	All components are listed or exempted.
Europe inventory (EINECS/ELINCS/NLP)	:	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)	:	Not determined.
Philippines inventory (PICCS)	:	All components are listed or exempted.
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 : See exposure scenarios

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
DMEL = Derived Minimal Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
vPvB = Very Persistent and Very Bioaccumulative
PNEC = Predicted No Effect Concentration
LC50 = Median lethal concentration
LD50 = Median lethal dose
OEL = Occupational Exposure Limit
VOC = Volatile Organic Compound
UVCB Substance of unknown or Variable composition, Complex reaction products or Biological material
NOEC No Observed Effect Concentration

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

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
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]

Acute Tox. 4	ACUTE TOXICITY - Category 4
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 Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1B	SKIN SENSITIZATION - Category 1B
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

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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.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : 30935

Product name : MULTIS COMPLEX EP 2

Section 1 - Title

Short title of the exposure scenario : Formulation additives, lubricants and greases - Industrial

List of use descriptors : **Identified use name:** Formulation additives, lubricants and greases - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02

Environmental contributing scenarios :

Health Contributing scenarios :

Processes and activities covered by the exposure scenario : Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:

ATIEL-ATC SPERC 2.Ai-l.v1

Amounts used : Volume manufactured/imported (tonnes/year) : 8.59E+03

Fraction of EU tonnage used in region : 0.1
Fraction of regional tonnage used locally : 0.1

Frequency and duration of use : Emission days (days per year) : 300

Environment factors not influenced by risk management : Local freshwater dilution factor : 10
Local marine water dilution factor : 100

Other conditions affecting environmental exposure : Negligible wastewater emissions as process operates without water contact.

Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements) : 5.00E-05
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): 1.60E-11
Release fraction to soil from process (after typical onsite RMMs): 0

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Treat air emission to provide a typical removal efficiency of (%) : 70

Prevent discharge of undissolved substance to or recover from onsite wastewater. User sites are assumed to be provided with oil/water separators and for waste water to be discharged via public sewer system.

Organizational measures to prevent/limit release from site : Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Estimated substance removal from wastewater via domestic sewage treatment (%): (%) : 0.31 Assumed domestic sewage treatment plant flow (m^3/d) : 2.00E+03 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day) : 1 501 221
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2:

No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human):	:	The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.atiel.org/reach/introduction.
Health	:	Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see www.atiel.org/reach/introduction.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : 30935

Product name : MULTIS COMPLEX EP 2

Section 1 - Title

Short title of the exposure scenario : General use of lubricants and greases in vehicles or machinery - Industrial

List of use descriptors : **Identified use name:** General use of lubricants and greases in vehicles or machinery - Industrial
Process Category: PROC01, PROC02, PROC08b, PROC09
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC07

Environmental contributing scenarios :

Health Contributing scenarios :

Processes and activities covered by the exposure scenario : Covers general use of lubricants and greases in vehiculs or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:

ATIEL-ATC SPERC 4.Bi.v1

Amounts used : Volume manufactured/imported (tonnes/year) : 2.26E+03

Fraction of EU tonnage used in region : 0.1
Fraction of regional tonnage used locally : 0.1

Frequency and duration of use : Emission days (days per year) : 300

Environment factors not influenced by risk management : Local freshwater dilution factor : 10
Local marine water dilution factor : 100

Other conditions affecting environmental exposure : Negligible wastewater emissions as process operates without water contact.

Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements) : 5.00E-05
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): 1.60E-11
Release fraction to soil from process (after typical onsite RMMs): 0

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Prevent discharge of undissolved substance to or recover from onsite wastewater. User sites are assumed to be provided with oil/water separators and for waste water to be discharged via public sewer system.

Organizational measures to prevent/limit release from site : Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Estimated substance removal from wastewater via domestic sewage treatment (%): (%) : 0.31 Assumed domestic sewage treatment plant flow (m^3/d) : 2.00E+03 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day) : 601 830
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2:

No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human):	:	The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.atiel.org/reach/introduction.
Health	:	Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see www.atiel.org/reach/introduction.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : 30935

Product name : MULTIS COMPLEX EP 2

Section 1 - Title

Short title of the exposure scenario : Use of lubricants and greases in open systems - Industrial

List of use descriptors : **Identified use name:** Use of lubricants and greases in open systems - Industrial
Process Category: PROC01, PROC02, PROC07, PROC08b, PROC09, PROC10, PROC13
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios :

Health Contributing scenarios :

Processes and activities covered by the exposure scenario : Covers use of lubricants and greases in open systems, including application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mold releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:

ATIEL-ATC SPERC 4.Ci.v1

Amounts used : Volume manufactured/imported (tonnes/year) : 3.27E+02

Fraction of EU tonnage used in region : 0.1
Fraction of regional tonnage used locally : 0.1

Frequency and duration of use : Emission days (days per year) : 300

Environment factors not influenced by risk management : Local freshwater dilution factor : 10
Local marine water dilution factor : 100

Other conditions affecting environmental exposure : Negligible wastewater emissions as process operates without water contact.

Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements) : 5.0E-05
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): 1.60E-11
Release fraction to soil from process (after typical onsite RMMs): 0

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Treat air emission to provide a typical removal efficiency of (%) : 70
Prevent discharge of undissolved substance to or recover from onsite wastewater. User sites are assumed to be provided with oil/water separators and for waste water to be discharged via public sewer system.

Organizational measures to prevent/limit release from site : Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant	:	Estimated substance removal from wastewater via domestic sewage treatment (%): (%) : 0.31 Assumed domestic sewage treatment plant flow (m^3/d) : 2.00E+03 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day) : 88 935
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2:

No exposure assessment presented for human health.

Conditions and measures related to personal protection, hygiene and health evaluation

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1:

Exposure assessment (environment):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human):	:	The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.atiel.org/reach/introduction.
Health	:	Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see www.atiel.org/reach/introduction.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.