

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

1.1 Product identifier

Product name	HALBOT 311
Product code	469815-DE01
SDS #	469815
Product type	Liquid.

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

Identified uses
<input checked="" type="checkbox"/> General use of lubricants and greases in vehicles or machinery-Industrial <input checked="" type="checkbox"/> General use of lubricants and greases in vehicles or machinery-Professional

Use of the substance/ mixture	Gear lubricant For specific application advice see appropriate Technical Data Sheet or consult our company representative.
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1.3 Details of the supplier of the safety data sheet

Supplier	Castrol Holdings Europe B.V., d'Arcyweg 76, 3198NA Europoort Rotterdam
	Castrol Germany GmbH, Überseeallee 1, 20457 Hamburg
	+49 (0) 800 863 73 70
E-mail address	MSDSadvice@bp.com

1.4 Emergency telephone number

EMERGENCY TELEPHONE NUMBER	Carechem: +44 (0) 1235 239 670 (24/7)
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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]	
<input checked="" type="checkbox"/> Aquatic Chronic 3, H412	

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

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements

Signal word	No signal word.
Hazard statements	<input checked="" type="checkbox"/> H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements	
General	<input checked="" type="checkbox"/> P102 - Keep out of reach of children. P101 - If medical advice is needed, have product container or label at hand.
Prevention	<input checked="" type="checkbox"/> P273 - Avoid release to the environment.
Response	Not applicable.
Storage	Not applicable.
Disposal	<input checked="" type="checkbox"/> P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	Not applicable.

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SECTION 2: Hazards identification

Supplemental label elements Contains 2-tetradecyloxirane, reaction products with boric acid. May produce an allergic reaction.

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

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

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.
Tactile warning of danger Not applicable.

2.3 Other hazards

Results of PBT and vPvB assessment Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

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.

Other hazards which do not result in classification Defatting to the skin.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition Mixture

Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives.

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
<input checked="" type="checkbox"/> Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	REACH #: 01-2119474889-13 EC: 276-738-4 CAS: 72623-87-1 Index: 649-483-00-5	≥75 - ≤90	Asp. Tox. 1, H304	-	[1]
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	REACH #: 01-2119493635-27 UK (GB) REACH #: UK-01-0036152048-9 EC: 224-235-5 CAS: 4259-15-8	≤3	Eye Dam. 1, H318 Aquatic Chronic 2, H411	Eye Dam. 1, H318: C ≥ 50%	[1]
2-tetradecyloxirane, reaction products with boric acid	REACH #: 01-2119976364-28 EC: 701-392-2 CAS: -	<1	Skin Sens. 1B, H317	-	[1]
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	REACH #: 01-2119491299-23 EC: 270-128-1 CAS: 68411-46-1	≤1	Repr. 2, H361f	-	[1]
O,O,O-triphenyl phosphorothioate	REACH #: 01-2119979545-21 EC: 209-909-9 CAS: 597-82-0	≤0.1	Aquatic Chronic 1, H410	M [Chronic] = 10	[1]

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

Type

[1] Substance classified with a health or environmental hazard
Occupational exposure limits, if available, are listed in Section 8.

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SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	<input checked="" type="checkbox"/> Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if symptoms occur.
Protection of first-aiders	<input checked="" type="checkbox"/> 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

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

Potential acute health effects

Inhalation	Vapour inhalation under ambient conditions is not normally a problem due to low vapour pressure.
Ingestion	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Eye contact	No known significant effects or critical hazards.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation	Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea.
Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	<input checked="" type="checkbox"/> Use foam or all-purpose dry chemical to extinguish.
Unsuitable extinguishing media	Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.

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.
Hazardous combustion products	Combustion products may include the following: carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide) phosphorus oxides sulphur oxides (SO, SO ₂ , etc.)

5.3 Advice for firefighters

Special precautions for fire-fighters	<input checked="" type="checkbox"/> No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. This material is harmful to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
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.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

☑ Contact 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 spilt material. Floors may be slippery; use care to avoid falling. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

For emergency responders

☑ Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

☑ Avoid dispersal of spilt 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 material 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 the 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. Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
 See Section 5 for firefighting measures.
 See Section 8 for information on appropriate personal protective equipment.
 See Section 12 for environmental precautions.
 See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

☑ Put on appropriate personal protective equipment. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid contact of spilt material and runoff with soil and surface waterways. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. 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 a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep away from heat and direct sunlight. 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. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable

Prolonged exposure to elevated temperature

7.3 Specific end use(s)

Recommendations

See section 1.2 and Exposure scenarios in annex, if applicable.

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SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

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.

Derived No Effect Level

No DNELs/DMELs available.

Predicted No Effect Concentration

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

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. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Recommended: Nitrile gloves.

Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type. Our recommendations on the selection of gloves are as follows:

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Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.

If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.

It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

Glove Thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Skin and body

Use of protective clothing is good industrial practice.

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.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Refer to standards:

Respiratory protection: EN 529

Gloves: EN 420, EN 374

Eye protection: EN 166

Filtering half-mask: EN 149

Filtering half-mask with valve: EN 405

Half-mask: EN 140 plus filter

Full-face mask: EN 136 plus filter

Particulate filters: EN 143

Gas/combined filters: EN 14387

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.

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SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Physical state Liquid.
Colour Amber.
Odour Not available.
Odour threshold Not available.
Melting point/freezing point Not available.
Initial boiling point and boiling range Not available.
Flammability Not available.
Lower and upper explosion limit Not available.
Flash point Open cup: >190°C (>374°F) [Cleveland ASTM D 92]
Auto-ignition temperature Not available.
Decomposition temperature Not available.
pH Not applicable.
Kinematic viscosity Kinematic: 28.5 mm²/s (28.5 cSt) at 40°C
 Kinematic: 5.8 to 6.3 mm²/s (5.8 to 6.3 cSt) at 100°C

Solubility

Media	Result
water	Not soluble

Partition coefficient n-octanol/water (log value) Not applicable.

Vapour pressure

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	<0.07501	<0.01	ASTM D 5191			
Phosphonic acid, mixed C12-20-alkyl and C14-18-unsatd. alkyl derivs.	0.0000032	0.00000043				
Zinc bis[O,O-bis(2-ethylhexyl)] bis (dithiophosphate)	0.0000032	0.00000043	EU A.4	0.000034	0.0000045	EU A.4

Density and/or Relative density <1000 kg/m³ (<1 g/cm³) at 15°C

Relative vapour density Not available.

Particle characteristics

Median particle size Not applicable.

9.2 Other information

Evaporation rate Not available.

Explosive properties Not available.

Oxidising properties Not available.

Pour point <=-42 °C

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

10.2 Chemical stability The product is stable.

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

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10.4 Conditions to avoid Avoid all possible sources of ignition (spark or flame).

10.5 Incompatible materials Reactive or incompatible with the following materials: oxidising materials.

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/ingredient name	Result / Route	Test authority / Number	Species	Dose	Exposure	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	LC50 Inhalation Dusts and mists	OECD 403	Rat	>5 mg/l	4 hours	Based on studies with similar substances.
	LD50 Dermal	OECD 402	Rat	>5000 mg/kg	-	Based on studies with similar substances.
	LD50 Oral	OECD 423	Rat	>5000 mg/kg	-	Based on studies with similar substances.
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	LD50 Dermal	OECD 402	Rat	>5000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	3100 mg/kg	-	-
C14-18 alpha-olefin epoxide, reaction products with boric acid	LD50 Dermal	OECD 434	Rat	>2000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	>5000 mg/kg	-	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	LC50 Dermal	OECD 402	Rat	>2000 mg/kg	-	-
	LC50 Oral	OECD 401	Rat	>5000 mg/kg	-	-

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	2500	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Test authority / Test number	Species	Route / Result	Test concentration	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	OECD 405	Rabbit	Eyes - Severe irritant	-	Based on studies with similar substances.
	OECD 404	Rabbit	Skin - Non-irritant to skin.	-	Based on studies with similar substances.
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	-	Rabbit	Skin - Non-irritant to skin.	-	-

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C14-18 alpha-olefin epoxide, reaction products with boric acid	OECD	405	Rabbit	Eyes - Non-irritating to the eyes.	-	-
	OECD	404	Rabbit	Skin - Non-irritant to skin.	-	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD	405	Rabbit	Eyes - Not irritant	-	-
	OECD	404	Rabbit	Skin - Slightly irritating to the skin.	-	-

Sensitiser

Product/ingredient name	Route	Test authority / Test number	Species	Result	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	skin	OECD 406	Guinea pig	Not sensitising	Based on studies with similar substances.
Zinc bis[O,O-bis(2-ethylhexyl)] bis (dithiophosphate)	skin	OECD 406	Guinea pig	Not sensitising	-
C14-18 alpha-olefin epoxide, reaction products with boric acid	skin	OECD 406	Guinea pig	Sensitising	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	skin	OECD 406	Guinea pig	Not sensitising	-

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Product/ingredient name	Test authority / Test number	Cell	Type	Result	Remarks	
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	OECD 473 In vitro Mammalian Chromosomal Aberration Test	-	Experiment: In vitro	Subject: Mammal - species unspecified	Positive	Based on studies with similar substances.
	OECD 471 Bacterial Reverse Mutation Test	-	Experiment: In vitro	Subject: Bacteria	Negative	Based on studies with similar substances.
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	Based on studies with similar substances.
	OECD 474 Mammalian Erythrocyte Micronucleus Test	-	Experiment: In vivo	Subject: Mammal - species unspecified	Negative	Based on studies with similar substances.
C14-18 alpha-olefin epoxide, reaction products with boric acid	OECD 471	-	Experiment: In vitro	Subject: Bacteria	Negative	-
	OECD 473	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	-
	OECD 476	-	Experiment: In vitro	Subject: Mammalian-	Negative	-

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			Animal			
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD 471	-	Experiment: In vitro	Subject: Bacteria	Negative	-
	OECD 487	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	-
	OECD 476	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	-

Carcinogenicity

Not available.

Reproductive toxicity

Product/ ingredient name	Test authority / Test number	Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	OECD 421	Rat	Oral	-	Negative	Negative	Negative	Based on studies with similar substances.
C14-18 alpha-olefin epoxide, reaction products with boric acid	OECD 422	Rat	Oral	-	Negative	Negative	Negative	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD 443	Rat	Oral	-	Negative	Negative	Positive	-

Aspiration hazard

Product/ingredient name	Result
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	ASPIRATION HAZARD - Category 1

Conclusion/Summary

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

Conclusion/Summary

Not available.

Information on likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Inhalation

Vapour inhalation under ambient conditions is not normally a problem due to low vapour pressure.

Ingestion

No known significant effects or critical hazards.

Skin contact

Defatting to the skin. May cause skin dryness and irritation.

Eye contact

No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation

May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.

Ingestion

No specific data.

Skin contact

Adverse symptoms may include the following:
irritation
dryness
cracking

Eye contact

No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation

Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Ingestion

Ingestion of large quantities may cause nausea and diarrhoea.

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Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.
Potential chronic health effects	
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.


SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test authority / Test number	Species	Type / Result	Exposure	Effects	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	OECD 202	Daphnia	Acute EL50 >10000 mg/l	48 hours	-	Based on studies with similar substances.
	OECD 203	Fish	Acute LL50 >100 mg/l	96 hours	-	Based on studies with similar substances.
	OECD 201	Algae	Acute NOEL ≥100 mg/l	72 hours	-	-
	OECD 211	Daphnia	Chronic NOEL ≥1000 mg/l	21 days	-	Based on studies with similar substances.
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	OECD 201	Algae	Acute ErL50 410 mg/l	72 hours	-	-
	OECD 202	Daphnia	Acute ErL50 75 mg/l	48 hours	-	-
	OECD 203	Fish	Acute LL50 4.4 mg/l	96 hours	-	-
	OECD 211	Daphnia	Chronic NOEC 0.4 mg/l	21 days	-	-
C14-18 alpha-olefin epoxide, reaction products with boric acid	OECD 202	Daphnia	Acute EL50 >100 mg/l	48 hours	-	-
	OECD 201	Algae	Acute ErL50 >100 mg/l	96 hours	-	-
	OECD 203	Fish	Acute LL50 >100 mg/l	96 hours	-	-
	OECD 201	Algae	Chronic NOELR 100 mg/l	96 hours	-	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD 202	Daphnia	Acute EC50 51 mg/l	48 hours	-	-
	OECD 201	Algae	Acute ErC50 >100 mg/l	72 hours	-	-

SECTION 12: Ecological information

OECD	203	Fish	Acute LC50 >100 mg/l	96 hours	-	-
OECD	211	Daphnia	Chronic EC10 1.69 mg/l	21 days	-	-
OECD	201	Algae	Chronic NOEC ≥10 mg/l	72 hours	-	-

Environmental hazards  Harmful to aquatic life with long lasting effects.


12.2 Persistence and degradability

Expected to be biodegradable.

Product/ingredient name	Test authority / Test number	Result - Exposure	Remarks
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	OECD 301F	31 % - Inherent - 28 days	Based on studies with similar substances.
Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	-	<5 % - Not readily - 27 days	-
C14-18 alpha-olefin epoxide, reaction products with boric acid	OECD 301B	26.7 % - Not readily - 28 days	-
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD 301B	1 % - 28 days	-

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	LogP _{ow}	BCF	Potential
 Zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	3.59	-	Low
2-tetradecyloxirane, reaction products with boric acid	9.4	-	High
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	5.1	-	High

12.4 Mobility in soil

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

Mobility Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

12.6 Endocrine disrupting properties Not available.

Other ecological information Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

12.7 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/licensed waste disposal contractor in accordance with local regulations.

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SECTION 13: Disposal considerations

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

Packaging

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

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. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

References Commission 2014/955/EU
Directive 2008/98/EC

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user Not available.

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 authorisation

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

Product/ingredient name	%	Designation [Usage]
HALBOT 311	95-100	3
methanol	<0.1	69

SECTION 15: Regulatory information

Labelling	Not applicable.
Other regulations	
REACH Status	The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.
United States inventory (TSCA 8b)	All components are active or exempted.
Australia inventory (AIC)	All components are listed or exempted.
Canada inventory	All components are listed or exempted.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (CSCL)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	At least one component is not listed.
Taiwan Chemical Substances Inventory (TCSI)	All components are listed or exempted.
Explosive precursors	Not applicable.
Ozone depleting substances (1005/2009/EU)	Not listed.
Prior Informed Consent (PIC) (649/2012/EU)	Not listed.
Persistent Organic Pollutants	Not listed.
EU - Water framework directive - Priority substances	None of the components are listed.
Seveso Directive	This product is not controlled under the Seveso Directive.

15.2 Chemical safety assessment A Chemical Safety Assessment has been carried out for one or more of the substances within this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

SECTION 16: Other information

Abbreviations and acronyms	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 BCF = Bioconcentration Factor CAS = Chemical Abstracts Service CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] CSA = Chemical Safety Assessment CSR = Chemical Safety Report DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EINECS = European Inventory of Existing Commercial chemical Substances ES = Exposure Scenario EUH statement = CLP-specific Hazard statement EWC = European Waste Catalogue GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) OECD = Organisation for Economic Co-operation and Development PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation
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SECTION 16: Other information

[Regulation (EC) No. 1907/2006]
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 RRN = REACH Registration Number
 SADT = Self-Accelerating Decomposition Temperature
 SVHC = Substances of Very High Concern
 STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
 STOT-SE = Specific Target Organ Toxicity - Single Exposure
 TWA = Time weighted average
 UN = United Nations
 UVCB = Complex hydrocarbon substance
 VOC = Volatile Organic Compound
 vPvB = Very Persistent and Very Bioaccumulative
 Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23,
 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN
 01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN
 01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN
 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN
 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN
 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8,
 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 /
 RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN
 01-2119474889-13

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

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H361f	Suspected of damaging fertility.
H370	Causes damage to organs.
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.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1A	CARCINOGENICITY - Category 1A
Carc. 2	CARCINOGENICITY - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2

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SECTION 16: Other information

Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Muta. 2	GERM CELL MUTAGENICITY - Category 2
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1B	SKIN SENSITISATION - 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 1	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 1
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

History

Date of issue/ Date of revision	14/08/2024.
Date of previous issue	21/02/2024.
Prepared by	Product Stewardship

 **Indicates information that has changed from previously issued version.**

Notice to reader

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Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	469815-DE01
Product name	HALBOT 311

Section 1: Title

Short title of the exposure scenario	General use of lubricants and greases in vehicles or machinery - Industrial
List of use descriptors	<p>Identified use name: General use of lubricants and greases in vehicles or machinery-Industrial</p> <p>Process Category: PROC01, PROC08b, PROC09, PROC02</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC07</p> <p>Specific Environmental Release Category: ATIEL-ATC SPERC 4.Biv1</p>

Processes and activities covered by the exposure scenario	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

No exposure scenario is presented because the product is not classified for Human Health

Contributing scenarios: Operational conditions and risk management measures

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 2.63E+3 Tonnes/year

Frequency and duration of use:

Emission days: 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 (after typical onsite RMMs): 5.00E-05

Release fraction to soil from process (after typical onsite RMMs): 0

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan): 1.40E-11

Technical conditions and measures at process level (source) to prevent release:

Common practices vary across sites thus conservative process release estimates used.

HALBOT 311

General use of lubricants and greases in vehicles or machinery - Industrial

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 waste water to be discharged via a sewage treatment plant
Organisational 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 on-site sewage treatment	0.31
Assumed domestic sewage treatment plant flow rate (m3/d)	2.00E+3
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal as product:	6353.16
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.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Used ECETOC TRA model (May 2010 release).
Exposure estimation and reference to its source - Workers	
Exposure assessment (human):	No exposure scenario is presented because the product is not classified for Human Health

Section 4: Guidance to check compliance with the exposure scenario

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_GES
Health	No exposure scenario is presented because the product is not classified for Human Health

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mixture
Code	469815-DE01
Product name	HALBOT 311

Section 1: Title

Short title of the exposure scenario	General use of lubricants and greases in vehicles or machinery - Professional
List of use descriptors	<p>Identified use name: General use of lubricants and greases in vehicles or machinery-Professional</p> <p>Process Category: PROC01, PROC02, PROC08b, PROC09</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC07</p> <p>Specific Environmental Release Category: ATIEL-ATC SPERC 4.Biv1</p>

Processes and activities covered by the exposure scenario	Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

No exposure scenario is presented because the product is not classified for Human Health

Contributing scenarios: Operational conditions and risk management measures

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 2.63E+3 Tonnes/year

Frequency and duration of use:

Emission days: 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 (after typical onsite RMMs): 5.00E-05

Release fraction to soil from process (after typical onsite RMMs): 0

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan): 5E-0.4

Technical conditions and measures at process level (source) to prevent release:

Common practices vary across sites thus conservative process release estimates used.

HALBOT 311

General use of lubricants and greases in vehicles or machinery - Professional

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 waste water to be discharged via a sewage treatment plant
Organisational 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 on-site sewage treatment	0.31
Assumed domestic sewage treatment plant flow rate (m ³ /d)	2.00E+3
Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal as product:	72.36
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.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Used ECETOC TRA model (May 2010 release).

Exposure estimation and reference to its source - Workers	
Exposure assessment (human):	No exposure scenario is presented because the product is not classified for Human Health

Section 4: Guidance to check compliance with the exposure scenario

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_GES
Health	No exposure scenario is presented because the product is not classified for Human Health