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

1.1 Product identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>Optigear BM 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFI</td>
<td>FEY0-C03J-Q009-06A3</td>
</tr>
<tr>
<td>Product code</td>
<td>450750-FR01</td>
</tr>
<tr>
<td>SDS #</td>
<td>450750</td>
</tr>
<tr>
<td>Product type</td>
<td>Liquid.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>Use of the substance/mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gear oils</td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet

| Supplier                | Nordic Lubricants AB          |
|                        | Hemvärmsgatan 9, Solna, 17154, Sweden |
| E-mail address         | MSDSadvice@bp.com             |

1.4 Emergency telephone number

<table>
<thead>
<tr>
<th>EMERGENCY TELEPHONE NUMBER</th>
<th>Call 112 when poisoning incidents occur and request Poison Information - around the clock.</th>
</tr>
</thead>
</table>

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Product definition</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Skin Sens. 1, H317, Aquatic Chronic 3, H412</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>UFI:</th>
<th>FEY0-C03J-Q009-06A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard pictograms</td>
<td>![Exclamation Mark]</td>
</tr>
<tr>
<td>Signal word</td>
<td>Warning</td>
</tr>
<tr>
<td>Hazard statements</td>
<td>H317 - May cause an allergic skin reaction. H412 - Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>
SECTION 2: Hazards identification

Storage
Not applicable.

Disposal
P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients
Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3) maleic anhydride

Supplemental label elements
Not applicable.

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
Experimental data on one or more of the components has been used to determine all or part of the hazard classification of this product. 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.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification</th>
<th>Specific Conc. Limits, M-factors and ATEs</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorodithioic acid, mixed O.O-bis(iso-bu and pentyl) esters, zinc salts</td>
<td>REACH #: 01-2119493628-22 EC: 270-608-0 CAS: 68457-79-4</td>
<td>≤2.4</td>
<td>Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411</td>
<td>Skin Irrit. 2, H315: C ≥ 15% Eye Dam. 1, H318: C ≥ 3%</td>
<td>[1]</td>
</tr>
<tr>
<td>Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1.5:1:3)</td>
<td>REACH #: 01-0000016000-92 EC: 412-780-3 Index: 042-004-00-5</td>
<td>≤1.9</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411</td>
<td>-</td>
<td>[1]</td>
</tr>
</tbody>
</table>
SECTION 3: Composition/information on ingredients

maleic anhydride

<table>
<thead>
<tr>
<th>REACH #</th>
<th>≤0.1</th>
<th>Acute Tox. 4, H302</th>
<th>ATE [Oral] = 500 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-2119472428-31</td>
<td></td>
<td>Eye Dam. 1, H318</td>
<td>Skin Sens. 1, H317:</td>
</tr>
<tr>
<td>EC: 203-571-6</td>
<td></td>
<td>Resp. Sens. 1, H334</td>
<td>C ≥ 0.001%</td>
</tr>
<tr>
<td>CAS: 108-31-6</td>
<td></td>
<td>Skin Sens. 1A, H317</td>
<td></td>
</tr>
<tr>
<td>Index: 607-096-00-9</td>
<td></td>
<td>STOT RE 1, H372</td>
<td></td>
</tr>
</tbody>
</table>

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

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

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

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. In the event of any complaints or symptoms, avoid further exposure. Get medical attention.

Inhalation
If inhaled, remove to fresh air. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention if symptoms occur.

Ingestion
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
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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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
Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion
No known significant effects or critical hazards.

Skin contact
Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.

Eye contact
Not classified as an eye irritant. Based on data available for this or related materials. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
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

Hazardous combustion products
Combustion products may include the following:
- Carbon oxides (CO, \( \text{CO}_2 \)) (carbon monoxide, carbon dioxide)
- Metal oxide/oxides
- Nitrogen oxides (NO, \( \text{NO}_2 \) etc.)
- Phosphorus oxides
- Sulphur oxides (SO, \( \text{SO}_2 \), etc.)

5.3 Advice for firefighters

Special precautions for fire-fighters
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.

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 spill 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 spill 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 spill 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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid contact of spill 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. Concentrations of mist, fumes and vapours in enclosed spaces may result in the formation of explosive atmospheres. Excessive splashing, agitation or heating must be avoided. During metal working, solid particles from workpieces or tools will contaminate the fluid and may cause abrasions of the skin. Where such abrasions result in a penetration of the skin, first aid treatment should be applied as soon as reasonably possible. The presence of certain metals in the workpiece or tool, such as chromium, cobalt and nickel, can contaminate the metalworking fluid, as can bacteria, and as a result may induce allergic and other skin reactions, especially if personal hygiene is inadequate.

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.

7.3 Specific end use(s)

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

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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), solvent-dewaxed heavy paraffinic</td>
<td>Work environment authority Regulation 2018:1 (Sweden). TWA: 1 mg/m³ 8 hours. Issued/Revised: 8/1996 Form: mist and fume STEL: 3 mg/m³ 15 minutes. Issued/Revised: 8/1996 Form: mist and fume</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated heavy paraffinic</td>
<td>Work environment authority Regulation 2018:1 (Sweden). TWA: 1 mg/m³ 8 hours. Issued/Revised: 8/1996 Form: mist and fume STEL: 3 mg/m³ 15 minutes. Issued/Revised: 8/1996 Form: mist and fume</td>
</tr>
<tr>
<td>Residual oils (petroleum), solvent-dewaxed</td>
<td>Work environment authority Regulation 2018:1 (Sweden). TWA: 1 mg/m³ 8 hours. Issued/Revised: 8/1996 Form: mist and fume STEL: 3 mg/m³ 15 minutes. Issued/Revised: 8/1996 Form: mist and fume</td>
</tr>
<tr>
<td>Residual oils (petroleum), hydrotreated</td>
<td>Work environment authority Regulation 2018:1 (Sweden). TWA: 1 mg/m³ 8 hours. Issued/Revised: 8/1996 Form: mist and fume STEL: 3 mg/m³ 15 minutes. Issued/Revised: 8/1996 Form: mist and fume</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>Work environment authority Regulation 2018:1 (Sweden). Skin sensitiser. TWA: 0.05 ppm 8 hours. Issued/Revised: 7/2012 TWA: 0.2 mg/m³ 8 hours. Issued/Revised: 7/2012 STEL: 0.1 ppm 15 minutes. Issued/Revised: 6/2016 STEL: 0.4 mg/m³ 15 minutes. Issued/Revised: 6/2016</td>
</tr>
</tbody>
</table>

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.
SECTION 8: Exposure controls/personal protection

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.

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. 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.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

For protection against metal working fluids, respiratory protection that is classified as “resistant to oil” (class R) or oil proof (class P) should be selected where appropriate. Depending on the level of airborne contaminants, an air-purifying, half-mask respirator (with HEPA filter) including disposable (P- or R-series) (for oil mists less than 50mg/m³), or any powered, air-purifying respirator equipped with hood or helmet and HEPA filter (for oil mists less than 125 mg/m³).

Where organic vapours are a potential hazard during metalworking operations, a combination particulate and organic vapour filter may be necessary.

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

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:

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.
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

#### Appearance
- **Physical state**: Liquid.
- **Colour**: Brown. [Dark]
- **Odour**: Not available.
- **Odour threshold**: Not available.
- **pH**: Not applicable.
- **Melting point/freezing point**: Not available.
- **Initial boiling point and boiling range**: Not available.
- **Pour point**: -21 °C
- **Flash point**: Open cup: 220°C (428°F) [Cleveland]
- **Evaporation rate**: Not available.
- **Flammability (solid, gas)**: Not available.
- **Lower and upper explosion limit**: Not available.
- **Vapour pressure**: Not available.

#### Vapour Pressure at 20°C and Vapour pressure at 50°C

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapour Pressure at 20°C</th>
<th>Vapour pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>Distillates (petroleum), solvent-dewaxed heavy paraffinic</td>
<td>&lt;0.08</td>
<td>&lt;0.011</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated heavy paraffinic</td>
<td>&lt;0.08</td>
<td>&lt;0.011</td>
</tr>
<tr>
<td>Phosphorodithioic acid, O,O-bis(iso-butyl and pentyl) esters, zinc</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>salts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual oils (petroleum), solvent-dewaxed</td>
<td>&lt;0.08</td>
<td>&lt;0.011</td>
</tr>
<tr>
<td>Residual oils (petroleum), hydrotreated</td>
<td>&lt;0.08</td>
<td>&lt;0.011</td>
</tr>
</tbody>
</table>

- **Relative vapour density**: Not available.
- **Relative density**: Not available.
- **Density**: <1000 kg/m³ (<1 g/cm³) at 15°C
- **Solubility(ies)**: Not applicable.

#### Media
- **Water**: Not soluble

#### Partition coefficient: n-octanol/water
- Not applicable.

#### Auto-ignition temperature
- Not available.

#### Decomposition temperature
- Not available.

#### Viscosity
- Kinematic: 100 mm²/s (100 cSt) at 40°C

#### Explosive properties
- Not available.

#### Oxidising properties
- Not available.

#### Particle characteristics
- **Median particle size**: Not applicable.

### 9.2 Other information
- No additional information.
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.

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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test authority / Test number</th>
<th>Route / Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3)</td>
<td>OECD 402</td>
<td>Dermal</td>
<td>Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>OECD 401</td>
<td>Oral</td>
<td>Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>DIN 401</td>
<td>Dermal</td>
<td>Rabbit</td>
<td>2620 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>OECD 401</td>
<td>Oral</td>
<td>Rat</td>
<td>1090 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapours) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc dialkyl dithiophosphate</td>
<td>2500</td>
<td>500</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>500</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test authority / Test number</th>
<th>Species</th>
<th>Route / Result</th>
<th>Test concentration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3)</td>
<td>OECD 405</td>
<td>Rabbit</td>
<td>Eyes - Redness of the conjunctivae</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>OECD 404</td>
<td>Rabbit</td>
<td>Skin - Moderate irritant</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>OECD 405</td>
<td>Rabbit</td>
<td>Eyes - Corrosive</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>OECD 404</td>
<td>Rabbit</td>
<td>Skin - Corrosive</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitiser

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route</th>
<th>Test authority / Test number</th>
<th>Species</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction product of ammonium molybdate and C12-C24-diethoxylated alkylamine (1:5-1:3)</td>
<td>skin</td>
<td>OECD 406</td>
<td>Guinea pig</td>
<td>Sensitising</td>
<td>-</td>
</tr>
<tr>
<td>maleic anhydride</td>
<td>Respiratory</td>
<td>-</td>
<td>Rat</td>
<td>Sensitising</td>
<td>-</td>
</tr>
</tbody>
</table>
SECTION 11: Toxicological information

GERM CELL MUTAGENICITY

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test authority / Test number</th>
<th>Cell</th>
<th>Type</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maleic anhydride</td>
<td>OECD 471</td>
<td>-</td>
<td>Experiment: In vitro</td>
<td>Subject: Bacteria</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>OECD 476</td>
<td>-</td>
<td>Experiment: In vitro</td>
<td>Subject: Mammalian-Animal</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>OECD 475</td>
<td>-</td>
<td>Experiment: In vivo</td>
<td>Subject: Mammalian-Animal</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Information on likely routes of exposure

Potential acute health effects

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: No known significant effects or critical hazards.

Skin contact: Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.

Eye contact: Not classified as an eye irritant. Based on data available for this or related materials. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: No specific data.

Ingestion: No specific data.

Skin contact: Adverse symptoms may include the following: irritation, redness, 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.

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.

Remarks - Endocrine disruptor - Health: Not available.

11.2.2 Other information

Not available.
SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test authority / Test number</th>
<th>Species</th>
<th>Type / Result</th>
<th>Exposure</th>
<th>Effects</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maleic anhydride</td>
<td>OECD 201 Algae Acute EC50 65.78 mg/l</td>
<td>72 hours</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maleic anhydride</td>
<td>OECD 202 Daphnia Acute EC50 37.9 mg/l</td>
<td>48 hours</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maleic anhydride</td>
<td>OECD 203 Fish Acute LC50 75 mg/l</td>
<td>72 hours</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maleic anhydride</td>
<td>OECD 201 Algae Chronic EC10 10.4 mg/l</td>
<td>72 hours</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Environmental hazards: Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Expected to be biodegradable.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test authority / Test number</th>
<th>Result - Exposure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maleic anhydride</td>
<td>OECD 301B</td>
<td>&gt;90 % - 25 days</td>
<td>Readily biodegradable</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorodithioic acid, mixed O,O-bis(iso-bu and pentyl) esters, zinc salts</td>
<td>0.69</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Maleic anhydride</td>
<td>-2.78</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) Not available.

Mobility Non-volatile. Liquid. insoluble in water.

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.

Remarks - Endocrine disruptor - Environment 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.

Hazardous waste Yes.

European waste catalogue (EWC)

<table>
<thead>
<tr>
<th>Waste code</th>
<th>Waste designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 02 05*</td>
<td>mineral-based non-chlorinated engine, gear and lubricating oils</td>
</tr>
</tbody>
</table>

**Product name** Optigear BM 100

**Version** 16

**Date of issue** 3 November 2022

**Format** Sweden

**Language** ENGLISH
**SECTION 13: Disposal considerations**

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.

**Waste code**

<table>
<thead>
<tr>
<th>Waste code</th>
<th>European waste catalogue (EWC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 01 10*</td>
<td>packaging containing residues of or contaminated by hazardous substances</td>
</tr>
</tbody>
</table>

**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.

**Methods of disposal**

The regulations regarding manufacturers' responsibility for packaging material waste is regulated in "Förordningen om producentansvar för förpackningar". Packaging materials are to be reused or recycled in accordance with the goals outlined in this regulation. The company complies with this manufacturer's responsibility through its association with REPA, which is a subsidiary company of four materials handling companies. The materials handling companies collect, remove and process used and sorted packaging materials through the employment of contractors. Questions regarding collection of packaging materials on a local basis may be directed to the materials company and its contractors. For further information, contact REPA, www.repa.se.

Drums and containers are placed in a tilted position, approx 10°, drums are turned with the bungholes downwards and the 2” bunghole in the lowest position, containers with the valve downwards. Other packages are placed upside down for eduction. Let stand at temperatures above 15°C until drip dry or at least 30 minutes. Recover and add the remainders in the process where the product is used, or send for special waste treatment. Send empty packages to a certified recycler/receiver for recycling.

**References**

Commission 2014/955/EU
Directive 2008/96/EC

**SECTION 14: Transport information**

<table>
<thead>
<tr>
<th></th>
<th>ADR/RID</th>
<th>ADN</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14.2 UN proper shipping name</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>14.3 Transport hazard class(es)</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>14.4 Packing group</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>14.5 Environmental hazards</strong></td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td><strong>Additional information</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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.

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

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 (AIIIC)
All components are listed or exempted.

Canada inventory
At least one component is not listed in DSL but all such components are listed in NDSL.

China inventory (IECSC)
All components are listed or exempted.

Japan inventory (CSCL)
At least one component is not listed.

Korea inventory (KECI)
At least one component is not listed.

Philippines inventory (PICCS)
At least one component is not listed.

Taiwan Chemical Substances Inventory (TCSI)
All components are listed or exempted.

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
DNEEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
### Full text of abbreviated H statements

| H302 | Harmful if swallowed. |
| 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. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with long lasting effects. |
| EUH071 | Corrosive to the respiratory tract. |

### Full text of classifications [CLP/GHS]

- **Acute Tox. 4**: 
  **ACUTE TOXICITY - Category 4**
- **Aquatic Chronic 2**: 
  **LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2**
- **Eye Dam. 1**: 
  **SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1**
- **Eye Irrit. 2**: 
  **SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2**
- **Resp. Sens. 1**: 
  **RESPIRATORY SENSITISATION - Category 1**
- **Skin Corr. 1B**: 
  **SKIN CORROSION/IRRITATION - Category 1B**
- **Skin Irrit. 2**: 
  **SKIN CORROSION/IRRITATION - Category 2**
- **Skin Sens. 1**: 
  **SKIN SENSITISATION - Category 1**
- **Skin Sens. 1A**: 
  **SKIN SENSITISATION - Category 1A**
- **STOT RE 1**: 
  **SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1**

### History

- **Date of issue/Date of revision**: 03/11/2022.
- **Date of previous issue**: 22/03/2022.
- **Prepared by**: Product Stewardship

*Indicates information that has changed from previously issued version.*
**SECTION 16: Other information**

**Notice to reader**

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user’s obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.
Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition: Mixture

Code: 450750-FR01

Product name: Optigear BM 100

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
- Specific Environmental Release Category: ATIEL-ATC SPERC 4.Biv1

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.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:
- Physical state: Liquid, vapour pressure < 0.5 kPa
- Concentration of substance in product: Covers use of substance/product up to 100 % (unless stated differently)
- Frequency and duration of use: Covers daily exposures up to 8 hours
- Other conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/splashes as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

General exposures (closed systems):
No other specific measures identified.

Initial factory fill of equipment Use in contained systems:
No other specific measures identified.

Initial factory fill of equipment Open systems:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out operation for more than 4 hours.

Operation of equipment containing engine oils and similar Use in contained systems:
No other specific measures identified.

Equipment cleaning and maintenance:
Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature):
Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to emission.
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:
- 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.

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: 7700.8

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 estimation and reference to its source - Workers
- Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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** | Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. |
Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition: Mixture
Code: 450750-FR01
Product name: Optigear BM 100

Section 1: Title

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

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.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:
- Physical state: Liquid, vapour pressure < 0.5 kPa
- Concentration of substance in product: Covers use of substance/product up to 100% (unless stated differently)
- Frequency and duration of use: Covers daily exposures up to 8 hours
- Other conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/splits as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

General exposures (closed systems):
No other specific measures identified.

Initial factory fill of equipment Use in contained systems:
No other specific measures identified.

Initial factory fill of equipment Open systems:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out operation for more than 4 hours.

Operation of equipment containing engine oils and similar Use in contained systems:
No other specific measures identified.

Equipment cleaning and maintenance:
Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature):
Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to emission.
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: | Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan) | 5.00E-04 |
| 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 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 (Msafe) based on release following total wastewater treatment removal as product: | 86.4 |
| 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):** The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

Optigear BM 100 | General use of lubricants and greases in vehicles or machinery - Professional | 20/21
### 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](http://www.ATIEL.org/REACH_GES)

### Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.