

SAFETY DATA SHEET**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product name Castrol Radicool
UFI: 9Q00-7096-R002-42PS
Product code 458783-DE51
SDS # 458783
Product type Liquid.

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

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

**Use of the substance/
mixture** Coolant and antifreeze.
 For specific application advice see appropriate Technical Data Sheet or consult our company representative.

1.3 Details of the supplier of the safety data sheet

Supplier Castrol Holdings Europe B.V.,
 d'Arcyweg 76, 3198NA
 Europoort
 Rotterdam

Castrol Portugal S.A,
 Lagoas Park, Edificio 3, 2740-266 Porto Salvo, Parish of Porta Salvo, Municipality of Oeiras

+351 70 750 2030
E-mail address MSDSadvice@bp.com

1.4 Emergency telephone number

**EMERGENCY
TELEPHONE NUMBER** Carechem: +44 (0) 1235 239 670 (24/7)
Portugal Poison Center Centro de Informação Anti-venenos (CIAV) - Telefone : 800 250 250

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]

Acute Tox. 4, H302
 STOT RE 2, H373

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

UFI: 9Q00-7096-R002-42PS

Hazard pictograms

Signal word Warning

Hazard statements H302 - Harmful if swallowed.
 H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

General P102 - Keep out of reach of children.
 P101 - If medical advice is needed, have product container or label at hand.

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 1/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | (Portugal) | |

SECTION 2: Hazards identification

| | |
|------------------------------------|---|
| Prevention | P260 - Do not breathe vapour. P270 - Do not eat, drink or smoke when using this product. P264 - Wash hands thoroughly after handling. |
| Response | P301 + P312, P330 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. |
| Storage | Not applicable. |
| Disposal | P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. |
| Hazardous ingredients | <input checked="" type="checkbox"/> Ethylene glycol |
| 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 | Yes, 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 |
|---------------------------|---------|

Ethylene glycol Corrosion inhibitor.

| Product/ingredient name | Identifiers | % | Classification | Specific Conc. Limits, M-factors and ATEs | Type |
|---|--|-----|---|---|---------|
| <input checked="" type="checkbox"/> Ethylene glycol | REACH #: 01-2119456816-28 EC: 203-473-3 CAS: 107-21-1 Index: 603-027-00-1 | ≥90 | Acute Tox. 4, H302 STOT RE 2, H373 (kidneys) (oral) | ATE [Oral] = 500 mg/kg | [1] [2] |
| Sodium 2-ethylhexanoate | EC: 243-283-8 CAS: 19766-89-3 | <3 | Repr. 2, H361d | - | [1] |

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

Occupational 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. Get medical attention if irritation develops. |

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 2/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | (Portugal) | |

SECTION 4: First aid measures

| | |
|-----------------------------------|--|
| Inhalation | If inhaled, remove to fresh air. 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 ingested, call a physician or Poison Control Center immediately. Get medical attention urgently informing the doctor that a product containing ethylene glycol has been ingested and specific treatment may be required. Transport casualty together with the product container, its label, or the safety data sheet urgently to hospital. 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. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

4.2 Most important symptoms and effects, both acute and delayed

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 | Harmful if swallowed. Ethylene glycol: Ingestion of ethylene glycol can cause metabolic acidosis, kidney damage, central nervous system depression, and convulsions. The estimated human lethal dose is approximately 100 ml (3.4 ounces for an adult). |
| 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

| | |
|----------------------------|--|
| Specific treatments | Ethylene Glycol: Gastric irrigation, ethanol or fomepizole may have value in treatment. Consult physician. |
|----------------------------|--|

SECTION 5: Firefighting measures

5.1 Extinguishing media

| | |
|---------------------------------------|---|
| Suitable extinguishing media | In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray. |
| 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) metal oxide/oxides |

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. |
| 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 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).

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 breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. 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.

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.

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

Product/ingredient name

Exposure limit values

Ethylene glycol

Portuguese Institute of Quality (Portugal).
 CEIL: 100 mg/m³ Issued/Revised: 11/2014 Form: Aerosol

| | | |
|--|---------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 4/16 |
| Version 2 Date of issue 23 December 2022 | Format Portugal | Language ENGLISH |
| Date of previous issue 19 October 2021. | (Portugal) | |

SECTION 8: Exposure controls/personal protection

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.

Biological exposure indices

Product/ingredient name

Exposure indices

No exposure indices known.

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: Butyl gloves.
Neoprene 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:

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 5/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | | (Portugal) |

SECTION 8: Exposure controls/personal protection

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.

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

Appearance

| | |
|-----------------------|--------------|
| Physical state | Liquid. |
| Colour | Blue. Green. |

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 6/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | (Portugal) | |

SECTION 9: Physical and chemical properties

| | |
|--|--|
| Odour | Mild. |
| Odour threshold | Not available. |
| pH | 8.6 [Conc. (% w/w): 100%] |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | Not available. |
| Flash point | Closed cup: 122°C (251.6°F) [Pensky-Martens] |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not available. |
| Lower and upper explosion limit | Lower: 3.2% |
| Vapour pressure | |

| Ingredient name | Vapour Pressure at 20°C | | | Vapour pressure at 50°C | | |
|-------------------------|-------------------------|---------------|--------|-------------------------|---------------|--------|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| Ethylene glycol | 0.09 | 0.012 | | | | |
| Sodium 2-ethylhexanoate | <0.000000008 | <0.0000000011 | | <0.000000008 | <0.0000000011 | |

| | |
|--------------------------------|---|
| Relative vapour density | Not available. |
| Relative density | Not available. |
| Density | 1112 kg/m ³ (1.112 g/cm ³) at 20°C |
| Solubility(ies) | |

| Media | Result |
|-------|--------------------|
| Water | Miscible in water. |

Partition coefficient: n-octanol/water Not applicable.

| Ingredient name | °C | °F | Method |
|-----------------|-----|-------|--------|
| Ethylene glycol | 398 | 748.4 | |

| | |
|----------------------------------|----------------|
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| 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. |

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 7/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | | (Portugal) |

SECTION 11: Toxicological information

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

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) |
|-------------------------|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| Castrol Radicool | 515.3 | N/A | N/A | N/A | N/A |
| Ethylene glycol | 500 | N/A | N/A | N/A | N/A |

Information on likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation, Eyes.

Potential acute health effects

Inhalation

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

Ingestion

Harmful if swallowed. Ethylene glycol: Ingestion of ethylene glycol can cause metabolic acidosis, kidney damage, central nervous system depression, and convulsions. The estimated human lethal dose is approximately 100 ml (3.4 ounces for an adult).

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.

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

May cause damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure. (kidney)

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Developmental effects

Birth defects and decreased fetal weight have been observed in laboratory animals fed ethylene glycol in large amounts repeatedly during pregnancy.

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

Environmental hazards

Not classified as dangerous

12.2 Persistence and degradability

Expected to be biodegradable.

12.3 Bioaccumulative potential

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

| | | |
|--|---------------------------------------|------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 8/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | Language ENGLISH | (Portugal) |

SECTION 12: Ecological information

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. |
| Remarks - Endocrine disruptor - Environment | Not available. |
| Other ecological information | Miscible in water. |
| 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 | Undiluted fluid Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations. Diluted Fluid Diluted fluid should not be discharged into sewage systems unless provided for by local regulations. Dispose under conditions approved by the local authority or via a licensed waste disposal contractor. |
|---------------------|---|

Hazardous waste Yes.

European waste catalogue (EWC)

| Waste code | Waste designation |
|------------|---|
| 16 01 14* | antifreeze fluids containing hazardous substances |

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

Diluted Fluid Diluted fluid should not be discharged into sewage systems unless provided for by local regulations. Dispose under conditions approved by the local authority or via a licensed waste disposal contractor.

| | |
|------------|--|
| 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) | - | - | - | - |
| | | | | |

| | | | | | |
|------------------------|------------------|---------------|------------------|----------|---------------------|
| Product name | Castrol Radicool | Product code | 458783-DE51 | Page: | 9/16 |
| Version | 2 | Date of issue | 23 December 2022 | Format | Portugal (Portugal) |
| Date of previous issue | 19 October 2021. | | | Language | ENGLISH |

| SECTION 14: Transport information | | | | |
|--|-----|-----|-----|-----|
| 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.

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.

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)

Not determined.

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)

All components are listed or exempted.

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.

| | | |
|--|---------------------------------------|------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 10/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | Language ENGLISH | (Portugal) |

SECTION 15: Regulatory information

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 [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 |
|---------------------------------------|--|
| Acute Tox. 4, H302 STOT RE 2, H373 | Calculation method Calculation method |

Full text of abbreviated H statements

H302 Harmful if swallowed.
 H361d Suspected of damaging the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.

Full text of classifications [CLP/GHS]

Acute Tox. 4 ACUTE TOXICITY - Category 4
 Repr. 2 REPRODUCTIVE TOXICITY - Category 2
 STOT RE 2 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

History

Date of issue/ Date of revision 23/12/2022.

| | | |
|--|---------------------------------------|-------------------------|
| Product name Castrol Radicool | Product code 458783-DE51 | Page: 11/16 |
| Version 2 | Date of issue 23 December 2022 | Format Portugal |
| Date of previous issue 19 October 2021. | | Language ENGLISH |
| | (Portugal) | |

SECTION 16: Other information

Date of previous issue 19/10/2021.

Prepared by ***

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

Notice to reader

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Product name Castrol Radicool

Product code 458783-DE51

Page: 12/16

Version 2 **Date of issue** 23 December 2022

Format Portugal

Language ENGLISH

Date of previous issue 19 October 2021.

(Portugal)

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

| | |
|---------------------------|------------------|
| Product definition | Mixture |
| Code | 458783-DE51 |
| Product name | Castrol Radicool |

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, 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. |
|--|---|

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/spills 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. 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 points when contact with warm (>50°C) lubricant is likely. Wear chemical-resistant gloves (tested to EN374) in

combination with intensive management supervision controls. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:
Store substance within a closed system.

Section 2.2: Control of environmental exposure

No exposure scenario is presented because the product is not classified for the Environment

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): No exposure scenario is presented because the product is not classified for the 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)

Professional

Identification of the substance or mixture

| | |
|--------------------|------------------|
| Product definition | Mixture |
| Code | 458783-DE51 |
| Product name | Castrol Radicool |

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, PROC08a, PROC08b, PROC20
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Specific Environmental Release Category: ESVOC SpERC 9.6b.v1

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/spills 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.

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

Material transfers Non-dedicated facility:
Avoid carrying out activities involving exposure for more than 4 hours per day. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

Equipment cleaning and maintenance Dedicated facility:
Drain down system prior to equipment break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:
Store substance within a closed system.

Section 2.2: Control of environmental exposure

No exposure scenario is presented because the product is not classified for the Environment

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):

No exposure scenario is presented because the product is not classified for the 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.