

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

1.1 Product identifier

Product name	Castrol Radicool Si-OAT
UFI:	E0N0-30KH-N00D-YVT9
Product code	468096-DE51
SDS #	468096
Product type	Liquid.

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

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

Supplier	Castrol Holdings Europe B.V., d'Arcyweg 76, 3198NA Europoort Rotterdam
	Castrol Belgium BV, Langerbuggerkaai 18, 9000 Gent
	+32 (0)800 49312
E-mail address	MSDSadvice@bp.com

1.4 Emergency telephone number

EMERGENCY TELEPHONE NUMBER	Carechem: +44 (0) 1235 239 670 (24/7)
Belgium Poison Center	Belgium: Poison center 070 245245

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Acute Tox. 4, H302

STOT RE 2, H373 (kidneys)

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:	E0N0-30KH-N00D-YVT9
Hazard pictograms	



Signal word	Warning
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Hazard statements	H302 - Harmful if swallowed. H373 - May cause damage to organs through prolonged or repeated exposure. (kidneys)
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Precautionary statements

General	P102 - Keep out of reach of children. P101 - If medical advice is needed, have product container or label at hand.
Prevention	P260 - Do not breathe vapour. P270 - Do not eat, drink or smoke when using this product. P264 - Wash hands thoroughly after handling.

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SECTION 2: Hazards identification

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	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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition	Mixture
Ethylene glycol; ethanediol.	

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
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]
disodium sebacate	REACH #: 01-2120762063-61 EC: 241-300-3 CAS: 17265-14-4	≤5	Eye Irrit. 2, H319	-	[1]
sodium 4(or 5)-methyl-1H-benzotriazole	REACH #: 01-2119980062-42 EC: 265-004-9 CAS: 64665-57-2	≤0.3	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Repr. 2, H361d Aquatic Chronic 2, H411	ATE [Oral] = 500 mg/kg	[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 if irritation develops.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	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	No known significant effects or critical hazards.
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.
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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.
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SECTION 5: Firefighting measures

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

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

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Ethylene glycol	Limit values (Belgium). Absorbed through skin. TWA: 20 ppm 8 hours. Issued/Revised: 10/2002 Form: Aerosol TWA: 52 mg/m³ 8 hours. Issued/Revised: 10/2002 Form: Aerosol Limit value - M: 40 ppm Issued/Revised: 10/2002 Form: Aerosol Limit value - M: 104 mg/m³ Issued/Revised: 10/2002 Form: Aerosol

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

Product/ingredient name	Type	Exposure	Value	Population	Effects
Ethylene glycol	DNEL	Long term Inhalation -	35 mg/m³	Workers	Local
	DNEL	Long term Dermal -	106 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation -	7 mg/m³	General population	Local
	DNEL	Long term Dermal -	53 mg/kg bw/day	General population	Systemic

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	

SECTION 8: Exposure controls/personal 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:

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.

SECTION 8: Exposure controls/personal protection

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

Physical state	Liquid.																				
Colour	Pink																				
Odour	Not available.																				
Odour threshold	Not available.																				
Melting point/freezing point	<-18°C (<-0.4°F)																				
Initial boiling point and boiling range	>160°C (>320°F)																				
Flammability	Not available.																				
Lower and upper explosion limit	Not available.																				
Flash point	Closed cup: >124°C (>255.2°F) [Pensky-Martens]																				
Auto-ignition temperature	<table><tr><th>Ingredient name</th><th>°C</th><th>°F</th><th>Method</th></tr><tr><td>Ethylene glycol</td><td>398</td><td>748.4</td><td></td></tr></table>	Ingredient name	°C	°F	Method	Ethylene glycol	398	748.4													
Ingredient name	°C	°F	Method																		
Ethylene glycol	398	748.4																			
Decomposition temperature	Not available.																				
pH	8 [Conc. (% w/w): 100%]																				
Kinematic viscosity	Kinematic: 20 to 30 mm²/s (20 to 30 cSt) at 20°C																				
Solubility	<table><tr><th>Media</th><th>Result</th></tr><tr><td>water</td><td>Miscible in water.</td></tr></table>	Media	Result	water	Miscible in water.																
Media	Result																				
water	Miscible in water.																				
Partition coefficient n-octanol/ water (log value)	Not applicable.																				
Vapour pressure	<table><tr><th rowspan="2">Ingredient name</th><th colspan="3">Vapour Pressure at 20°C</th><th colspan="3">Vapour pressure at 50°C</th></tr><tr><th>mm Hg</th><th>kPa</th><th>Method</th><th>mm Hg</th><th>kPa</th><th>Method</th></tr><tr><td>Ethylene glycol</td><td>0.09226</td><td>0.012</td><td></td><td></td><td></td><td></td></tr></table>	Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C			mm Hg	kPa	Method	mm Hg	kPa	Method	Ethylene glycol	0.09226	0.012				
Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C																	
	mm Hg	kPa	Method	mm Hg	kPa	Method															
Ethylene glycol	0.09226	0.012																			
Density and/or Relative density	1122 to 1125 kg/m³ (1.122 to 1.125 g/cm³) at 20°C																				
Relative vapour density	Not available.																				
Particle characteristics																					
Median particle size	Not applicable.																				
9.2 Other information																					
Evaporation rate	Not available.																				
Explosive properties	Not available.																				
Oxidising properties	Not available.																				

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 excessive heat.
10.5 Incompatible materials	Reactive or incompatible with the following materials: oxidising materials.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**Acute toxicity

Product/ingredient name	Result / Route	Test authority / Number	Species	Dose	Exposure	Remarks
Ethylene glycol	LC50 Inhalation Dusts and mists	-	Rat	>2.5 mg/l	6 hours	-
	LD50 Dermal	-	Mouse	>3500 mg/kg	-	-
	LD50 Oral	-	Rat	7712 mg/kg	-	-
disodium sebacate	LD50 Dermal	OECD 402	Rat	>2000 mg/kg	-	-
	LD50 Oral	OECD 423	Rat	>5000 mg/kg	-	-
sodium 4(or 5)-methyl-1H-benzotriazolidine	LD50 Dermal	OECD 402	Rabbit	>2000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	735 mg/kg	-	-

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Castrol Radicool Si-OAT	526.0	N/A	N/A	N/A	N/A
Ethylene glycol	500	N/A	N/A	N/A	N/A
sodium 4(or 5)-methyl-1H-benzotriazolidine	500	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Test authority / Test number	Species	Route / Result	Test concentration	Remarks
Ethylene glycol	-	Rabbit	Eyes - Non-irritating to the eyes.	-	-
	-	Rabbit	Skin - Non-irritant to skin.	-	-
disodium sebacate	OECD 437	RhE	Eyes - Irritant	-	-
	OECD 404	Rabbit	Skin - Non-irritant to skin.	-	-
sodium 4(or 5)-methyl-1H-benzotriazolidine	OECD 404	Rabbit	Skin - Corrosive	-	-

Sensitiser

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Product/ingredient name	Route	Test authority / Test number		Species	Result	Remarks
Ethylene glycol	skin	OECD	406	Guinea pig	Not sensitising	-
disodium sebacate	skin	DIN	-	Unspecified	Not sensitising	-
sodium 4(or 5)-methyl-1H-benzotriazole	skin	OECD	406	Guinea pig	Not sensitising	Based on studies with similar substances.

GERM CELL MUTAGENICITY

Product/ingredient name	Test authority / Test number	Cell	Type	Result	Remarks	
Ethylene glycol	471 Bacterial Reverse Mutation Test	-	Experiment: In vitro	Subject: Bacteria	Negative	-
	473 In vitro Mammalian Chromosomal Aberration Test	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	-
disodium sebacate	OECD 471	-	Experiment: In vitro	Subject: Bacteria	Negative	-
	OECD 476	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	-
	-	-	Experiment: In vivo	Subject: Mammalian-Animal	Negative	-
sodium 4(or 5)-methyl-1H-benzotriazole	OECD 471	-	Experiment: In vitro	Subject: Bacteria	Negative	Based on studies with similar substances.
	OECD 476	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	Based on studies with similar substances.
	OECD 474	-	Experiment: In vivo	Subject: Mammalian-Animal	Negative	Based on studies with similar substances.

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Test authority / Test number	Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
Ethylene glycol	-	Rat	Oral	-	Negative	Negative	Negative	-
sodium 4(or 5)-methyl-1H-benzotriazole	OECD 414	Rat	Oral	-	Positive	Negative	Negative	Based on studies with similar substances.

Aspiration hazard

Product/ingredient name	Result
Not available.	

Conclusion/Summary

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

Conclusion/Summary

Not available.

Information on likely routes of exposure

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

Potential acute health effects**Inhalation**

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

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SECTION 11: Toxicological information

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	No known significant effects or critical hazards.
Eye contact	No known significant effects or critical hazards.
<u>Symptoms related to the physical, chemical and toxicological characteristics</u>	
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	No specific data.
Eye contact	No specific data.
<u>Delayed and immediate effects as well as chronic effects from short and long-term exposure</u>	
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.
<u>Potential chronic health effects</u>	
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.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test authority / Test number		Species	Type / Result	Exposure	Effects	Remarks
Ethylene glycol	OECD	201	Algae	Acute EC50 >100 mg/l	72 hours	-	-
	OECD	202	Daphnia	Acute EC50 >100 mg/l	48 hours	-	-
	-	-	Fish	Acute LC50 >1000 mg/l	96 hours	-	-
disodium sebacate	OECD	201	Algae	Chronic NOEC >100 mg/l	72 hours	-	-
	OECD	202	Daphnia	Acute EC50 >100 mg/l	48 hours	-	-
	OECD	203	Fish	Acute LC50 >100 mg/l	96 hours	-	-
sodium 4(or 5)-methyl-1H-benzotriazolide	OECD	201	Algae	Acute EC50 29 mg/l	72 hours	-	Based on studies with similar substances.
	OECD	202	Daphnia	Acute EC50 8.58 mg/l	48 hours	-	Based on studies with similar substances.
	OECD	203	Fish	Acute LC50 180 mg/l	96 hours	-	Based on studies with similar substances.

SECTION 12: Ecological information

OECD	201	Algae	Chronic EC10 1.18 mg/l	72 hours	-	Based on studies with similar substances.
OECD	211	Daphnia	Chronic EC10 0.97 mg/l	21 days	-	Based on studies with similar substances.

Environmental hazards Not classified as dangerous

12.2 Persistence and degradability

Expected to be biodegradable.

Product/ingredient name	Test authority / Test number	Result - Exposure	Remarks
Ethylene glycol	OECD 301A	>90 % - Readily - 10 days	-
disodium sebacate	OECD 306	89 % - Readily - 28 days	-
sodium 4(or 5)-methyl-1H-benzotriazole	OECD 301F	4 % - Not readily - 28 days	-

12.3 Bioaccumulative potential

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

Product/ingredient name	LogP _{ow}	BCF	Potential
Ethanediol	-1.36	-	Low
disodium sebacate	-4.9	-	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc})

Not available.

Mobility

Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

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

12.6 Endocrine disrupting properties

Not available.

Other ecological information

Miscible in water.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Product

Methods of disposal

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

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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.
Special precautions	This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
References	Commission 2014/955/EU Directive 2008/98/EC

SECTION 14: Transport information

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

14.6 Special precautions for user Not available.

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

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)
Annex XIV - List of substances subject to authorisation
Annex XIV

None of the components are listed.
Substances of very high concern
None of the components are listed.

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

Product/ingredient name	%	Designation [Usage]
Castrol Radicool Si-OAT (R11598A) - Parent	95-100	3

Labelling Not applicable.

Other regulations

REACH Status The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

United States inventory (TSCA 8b) All components are active or exempted.

Australia inventory (AIIIC) At least one component is not listed.

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Canada inventory	At least one component is not listed.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (CSCL)	At least one component is not listed.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	At least one component is not listed.
Taiwan Chemical Substances Inventory (TCSI)	At least one component is not listed.

[Explosive precursors](#)  Not applicable.

[Ozone depleting substances \(1005/2009/EU\)](#)

Not listed.

[Prior Informed Consent \(PIC\) \(649/2012/EU\)](#)

Not listed.

[Persistent Organic Pollutants](#)

Not listed.

[EU - Water framework directive - Priority substances](#)

None of the components are listed.

[Seveso Directive](#)

This product is not controlled under the Seveso Directive.

15.2 Chemical safety assessment

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

SECTION 16: Other information**Abbreviations and acronyms**

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

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SECTION 16: Other information

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 (kidneys)	Calculation method Calculation method

Full text of abbreviated H statements

H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H361d Suspected of damaging the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.

Full text of classifications [CLP/GHS]

H411 Toxic to aquatic life with long lasting effects.
 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
 Repr. 2 REPRODUCTIVE TOXICITY - Category 2
 Skin Corr. 1B SKIN CORROSION/IRRITATION - Category 1B
 STOT RE 2 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

History

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Prepared by Product Stewardship

Indicates information that has changed from previously issued version.

Notice to reader

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