

# SAFETY DATA SHEET



Castrol Radicool Si-OAT

(In accordance with Article 41, Paragraph 1, of Industrial Safety and Health Act)

## Section 1. Chemical product and company identification

**Product name** Castrol Radicool Si-OAT  
**Code** 468096-DE51  
**SDS no.** 468096  
**Supplier** BP Korea Ltd.  
19F., 302, Teheran-ro, Gangnam-gu, Seoul, 06210  
Republic of Korea

Tel: +82 -1577-1904

**EMERGENCY TELEPHONE NUMBER** Carechem: +65 3158 1074 (24/7)

### 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.

## Section 2. Hazards identification

**GHS Classification** ACUTE TOXICITY (oral) - Category 4  
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (kidneys) - Category 2

### GHS label elements, including precautionary statements

#### Symbol



**Signal word** Warning

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

#### Precautionary statements

**General** Read label before use. Keep out of reach of children. 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.

**Response** P314 - Get medical attention if you feel unwell.  
P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician 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.

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

## Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

Ethylene glycol; ethanediol.

### Hazardous ingredients

Ingredient name	Synonym	CAS number	%
Ethylene glycol	ethylene glycol; ethane-1,2-diol; 1,2-Ethanediol; Glycol; Monoethylene glycol; 1,2-Ethanediol (ethylene glycol); Glycol alcohol; 1,2-Dihydroxyethane; Ethylene glycol, aerosol; Glycohol alcohol; Ethylene dihydrate	107-21-1	100

### Non-hazardous ingredients

No non-hazardous ingredients

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

## Section 4. 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 symptoms occur.

### 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 symptoms occur.

### Inhalation

If inhaled, remove to fresh air. Get medical attention if symptoms occur.

### Ingestion

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.

### Indication of immediate medical attention and special treatment needed, if necessary

#### Specific treatments

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

#### Notes to physician

#### 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.

## Section 5. Firefighting measures

### Extinguishing media

<b>Suitable</b>	In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Not suitable</b>	Do not use water jet.
<b>Specific hazards arising from the chemical</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	Combustion products may include the following: carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide)
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
<b>Special protective actions for fire-fighters</b>	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.

## Section 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	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. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.
<b>Environmental precautions</b>	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).
<b><u>Methods and material for containment and cleaning up</u></b>	
<b>Small spill</b>	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.
<b>Large spill</b>	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.

## Section 7. Handling and storage

### Precautions for safe handling

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). 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. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	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.

## Section 7. Handling and storage

### Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

### Not suitable

Prolonged exposure to elevated temperature

## Section 8. Exposure controls/personal protection

### Control parameters

Ingredient name	Exposure limits
Ethylene glycol	<b>Ministry of Employment and Labor (Republic of Korea).</b> CEIL: 100 mg/m <sup>3</sup> Issued/Revised: 1/2009 Form: Vapour and mists

Other ingredients including trade secret: not applicable

### 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 appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### Appropriate engineering controls

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.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

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.

### 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.

### Personal protective equipment

#### 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 protection

Safety glasses with side shields.

## Section 8. Exposure controls/personal protection

### Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Butyl gloves. Neoprene gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

### Skin protection

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.

### 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.

## Section 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Colour

Pink.

#### Odour

Not available.

#### Odour threshold

Not available.

#### pH

8 [Conc. (% w/w): 100%]

#### Melting/freezing point

<-18°C (<-0.4°F)

#### Boiling point/boiling range

>160°C (>320°F)

#### Flash point

Closed cup: >124°C (>255.2°F) [Pensky-Martens.]

#### Evaporation rate

Not available.

#### Flammability (solid, gas)

Not available.

Not applicable. Based on - Physical state

#### Lower and upper explosive (flammable) limits

Lower: 3.4%  
Upper: 15.1%

#### Vapour pressure

Not available.

#### Solubility

Miscible in water.

#### Vapour density

Not available.

#### Relative density

Not available.

#### Density

1122 to 1125 kg/m<sup>3</sup> (1.122 to 1.125 g/cm<sup>3</sup>) at 20°C

#### Partition coefficient: n-octanol/water

Not available.

#### Auto-ignition temperature

Not available.

#### Decomposition temperature

Not available.

#### Viscosity

Kinematic: 20 to 30 mm<sup>2</sup>/s (20 to 30 cSt) at 20°C

## Section 9. Physical and chemical properties

**Molecular weight** Not applicable as it is a mixture

## Section 10. Stability and reactivity

**Chemical stability** The product is stable.

**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.

**Conditions to avoid** Avoid excessive heat.

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

**Hazardous decomposition products** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

**Information on likely routes of exposure** Routes of entry anticipated: Dermal, Inhalation.

### Acute toxicity

#### **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.

### **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**

Adverse symptoms may include the following:  
nausea or vomiting

#### **Skin**

No specific data.

#### **Eyes**

No specific data.

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

Product/ingredient name	Test	Species	Result	Exposure	Remarks
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Not available.

### **Irritation/Corrosion**

Product/ingredient name	Test authority / Test number	Species	Route / Result	Conc.	Remarks
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Not available for product and all ingredients.

**Skin corrosion or irritation** Not available for product and all ingredients.

**Serious eye damage/eye irritation** Not available for product and all ingredients.

**Respiratory Irritation** Not available for product and all ingredients.

### **Sensitisation**

## Section 11. Toxicological information

**Respiratory Sensitisation** Not available for product and all ingredients.

**Skin Sensitisation** Not available for product and all ingredients.

Product/ingredient name	Route of exposure	Species	Result	Remarks
Not available for product and all ingredients.				

### CMR - ISHA Article 42 Public Notice No 2016-41 Occupational Exposure Limits

Product/ingredient name	CAS number	Classification
Not available for product and all ingredients.		

### Carcinogenicity

Not available for product and all ingredients.

### Germ cell mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
Not available for product and all ingredients.				

### Reproductive toxicity

Product/ingredient name	Test detail	Species	Exposure	Developmental toxin	Maternal toxicity	Fertility	Remarks
Not available for product and all ingredients.							

#### **Teratogenicity**

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.

### Specific target organ toxicity (single exposure)

Not available for product and all ingredients.

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Ethylene glycol	Category 2	Oral	kidneys

### Potential chronic health effects

**General** 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.

### Aspiration hazard

Not available for product and all ingredients.

**Other information** Not available.



## Section 12. Ecological information

**Ecotoxicity** No known significant effects or critical hazards.

**Persistence/degradability**

Expected to be biodegradable.

**Mobility in soil** Spillages may penetrate the soil causing ground water contamination.

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

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

**Other ecological information** Miscible in water.

## Section 13. Disposal considerations

**Disposal methods** The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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.

**Disposal precautions** This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	IMDG	IATA
<b>A. UN number</b>	Not regulated.	Not regulated.
<b>B. UN proper shipping name</b>	-	-
<b>C. Transport hazard class(es)</b>	-	-
<b>D. Packing group</b>	-	-
<b>E. Environmental hazards</b>	No.	No.
<b>F. Additional information</b>	-	-

**Special precautions for user** Not available.



## Section 15. Regulatory information

### Regulation according to ISHA

**ISHA article 37 (Harmful substances prohibited from manufacture)** None of the components are listed.

**ISHA article 38 (Harmful substances requiring permission)** None of the components are listed.

### Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:

Ethylene glycol

**ISHA Enforcement Regs Annex 11-3 (Exposure standards established for harmful factors)** None of the components are listed.

**ISHA Enforcement Regs Annex 11-5 (Harmful factors subject to Work Environment Measurement)** The following components are listed: Ethylene glycol

**ISHA Enforcement Regs Annex 12-2 (Harmful Factors Subject to Special Health Check-up)** The following components are listed: Ethylene glycol

**Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control)** The following components are listed: Ethylene glycol

### Regulation according to Chemicals Control Act

**CCA Article 20 Toxic Chemicals (K-Reach Article 20)** Not applicable

**CCA Article 18 Prohibited (K-Reach Article 27)** None of the components are listed.

**CCA Article 20 Restricted (K-Reach Article 27)** None of the components are listed.

**CCA Article 11 (TRI)** None of the components are listed.

**CCA Article 39 (Accident Precaution Chemicals)** None of the components are listed.

**Dangerous Materials** Not regulated.

**Safety Management Act**

**Wastes regulation** Designated Waste

### Regulation according to other foreign laws

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

**Canada inventory** At least one component is not listed.

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

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

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

## Section 15. Regulatory information

<b>Korea inventory (KECI)</b>	All components are listed or exempted.
<b>Philippines inventory (PICCS)</b>	At least one component is not listed.
<b>Taiwan inventory (TCSI)</b>	At least one component is not listed.
<b>United States inventory (TSCA 8b)</b>	All components are active or exempted.

## Section 16. Other information

### History

#### Source of Information

Sources of key data used to compile the Safety Data Sheet: Hazard assessment review data, toxicological reviews, and product physical properties; component supplier hazard communication data; and other publically available resources.

#### Date first prepared

28/11/2016

#### Number of revisions and date of last revision

3.01 11/11/2020.

#### Prepared by

Product Stewardship

#### Key to abbreviations

AMP = Acceptable Maximum Peak  
ACGIH = American Conference of Governmental Industrial Hygienists, an agency that promulgates exposure standards.  
ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail  
ADG Code = Australian Code for the Transport of Dangerous Goods by Road and Rail  
CAS Number = Chemical Abstracts Service Registry Number  
HAZCHEM Code = Emergency action code of numbers and letters which gives information to emergency services. Its use is required by the ADG Code for Dangerous Goods in bulk.  
ICAO = International Civil Aviation Organization.  
IATA = International Air Transport Association, the organization promulgating rules governing shipment of goods by air.  
IMDG = International Maritime Organization Rules, rules governing shipment of goods by water.  
IP 346 = A chemical screening assay for dermal toxicity. The European Commission has recommended that Method IP 346 be used as the basis for labelling certain lubricant oil base stocks for carcinogenicity. The EU Commission has stipulated that the classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346. (See Note L, European Commission Directive 67/548/EEC as amended and adapted.) DMSO is a solvent.  
NOHSC = National Occupational Health & Safety Commission, Australia  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]  
TWA = Time weighted average  
STEL = Short term exposure limit  
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.  
TCCA = Toxic Chemical Control Act  
GHS = Global Harmonized System  
ISHA = Industrial Safety and Health Act  
Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

▣ 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.