

## Section 1. Identification

<b>GHS product identifier</b>	Castrol Radicool
<b>Product code</b>	458783-TH01
<b>SDS no.</b>	458783
<b>Relevant identified uses of the substance or mixture and uses advised against</b>	
<b>Use of the substance/ mixture</b>	Coolant and antifreeze. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
<b>Manufacturer</b>	BP - Castrol (Thailand) Limited Samut Sakon Industrial Estate, 39/77-78 Moo 2 Rama II Road, Bangkachao Amphur Muang, Samut Sakorn 74000 Tel. +66 34 419666, Fax. +66 34 419666
<b>Supplier</b>	BP - Castrol (Thailand) Limited 3 Rajanakarn Building, 23rd Floor South Sathon Road Yannawa, Sathon Bangkok 10120 Tel. +66 02 6843555, Fax. +66 02 684 3646
<b>EMERGENCY TELEPHONE NUMBER</b>	Carechem: 001800 1 2066 6751 (tollfree, access from Thailand only)

## Section 2. Hazards identification

<b>GHS Classification</b>	<p>ACUTE TOXICITY (oral) - Category 4          REPRODUCTIVE TOXICITY - Category 1          SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2</p>
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### GHS label elements

#### Hazard pictograms



<b>Signal word</b>	Danger
<b>Hazard statements</b>	<p>H302 - Harmful if swallowed.          H360 - May damage fertility or the unborn child.          H373 - May cause damage to organs through prolonged or repeated exposure.          (kidneys)</p>
<b>Precautionary statements</b>	
<b>General</b>	<p>P102 - Keep out of reach of children.          P101 - If medical advice is needed, have product container or label at hand.</p>
<b>Prevention</b>	<p>P201 - Obtain special instructions before use.          P202 - Do not handle until all safety precautions have been read and understood.          P281 - Use personal protective equipment as required.          P260 - Do not breathe vapour.          P270 - Do not eat, drink or smoke when using this product.          P264 - Wash hands thoroughly after handling.</p>
<b>Response</b>	<p>P308 + P313 - IF exposed or concerned: Get medical attention.          P301 + P312, P330 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.</p>
<b>Storage</b>	P405 - Store locked up.
<b>Disposal</b>	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Other hazards which do not result in classification</b>	None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

Ethylene glycol Corrosion inhibitor.

Ingredient name	%	CAS number
Ethylene glycol	≥90	107-21-1
Sodium 2-ethylhexanoate	≤3	19766-89-3

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

### Description of necessary first aid measures

<b>Inhalation</b>	☑ Inhaled, remove to fresh air. Get medical attention.
<b>Ingestion</b>	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.
<b>Skin contact</b>	☑ In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.
<b>Eye contact</b>	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.

### Most important symptoms/effects, acute and delayed

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

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

<b>Specific treatments</b>	Ethylene Glycol: Gastric irrigation, ethanol or fomepizole may have value in treatment. Consult physician.
<b>Notes to physician</b>	
<b>Protection of first-aiders</b>	☑ No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## Section 5. Firefighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Unsuitable extinguishing media</b>	Do not use water jet.

### Specific hazards arising from the chemical

In a fire or if heated, a pressure increase will occur and the container may burst.

### Hazardous thermal decomposition products

Combustion products may include the following:  
metal oxide/oxides  
carbon oxides (CO, CO<sub>2</sub>) (carbon monoxide, carbon dioxide)

### Special protective actions 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 positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

## Section 6. Accidental release measures

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

#### 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".

#### 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).

### 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.

## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

#### 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.

#### 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. Store locked up. 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

#### Occupational exposure limits

Ingredient name	Exposure limits
Ethylene glycol	Ministry of Labor (Thailand). CEIL: 100 mg/m <sup>3</sup> 8 hours. Issued/Revised: 8/2017

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 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.

### Eye protection

Safety glasses with side shields.

### Skin 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.

### 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.

## Section 9. Physical and chemical properties

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

### Appearance

#### Physical state

Liquid.

#### Colour

Blue. Green.

#### Odour

Mild.

#### Odour threshold

Not available.

#### pH

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

#### Melting point/freezing point

Not available.

#### Boiling point, initial boiling point, and boiling range

Not available.

#### Drop Point

Not available.

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## Section 9. Physical and chemical properties

Flash point	Closed cup: 122°C (251.6°F) [Pensky-Martens]
Evaporation rate	Not available.
Flammability	Not applicable. Based on - Physical state
Lower and upper explosion limit/flammability 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 <sup>3</sup> (1.112 g/cm <sup>3</sup> ) at 20°C
Solubility(ies)	:

Media	Result
water	Miscible in water.

Partition coefficient: n-octanol/water	Not applicable.
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Auto-ignition temperature	
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Ingredient name	°C	°F	Method
Ethylene glycol	398	748.4	

Decomposition temperature	Not available.
Viscosity	Not available.

Particle characteristics	
Median particle size	: Not applicable.

## Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
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 all possible sources of ignition (spark or flame).
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 toxicological effects

#### Acute toxicity

Product/ingredient name	Test	Species	Result	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	-	-

Conclusion/Summary Not available.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	515.26 mg/kg

### Irritation/Corrosion

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## Section 11. Toxicological information

Product/ingredient name	Species	Result	Score	Exposure	Observation	Conc.	Remarks
Ethylene glycol	Rabbit	Eyes - Non-irritating to the eyes.	-	-	-	-	-
	Rabbit	Skin - Non-irritant to skin.	-	-	-	-	-

### Sensitiser

Product/ingredient name	Route of exposure	Species	Result	Remarks
Ethylene glycol	skin	Guinea pig	Not sensitising	-

### Mutagenicity

Product/ingredient name	Test	Experiment	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	-

### Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Result	Exposure
Ethylene glycol	Negative	Negative	Negative	Rat	Oral	-

### Specific target organ toxicity (repeated exposure)

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

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

### Potential acute health effects

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

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.
<b>Skin contact</b>	Adverse symptoms may include the following: irritation dryness cracking
<b>Ingestion</b>	Adverse symptoms may include the following: nausea or vomiting reduced foetal weight increase in foetal deaths skeletal malformations

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

<b>Eye contact</b>	Potential risk of transient stinging or redness if accidental eye contact occurs.
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## Section 11. Toxicological information

<b>Inhalation</b>	Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.
<b>Skin contact</b>	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
<b>Potential chronic health effects</b>	
<b>General</b>	May cause damage to organs through prolonged or repeated exposure. (kidney)
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Teratogenicity</b>	May damage the unborn child.
<b>Developmental effects</b>	Birth defects and decreased fetal weight have been observed in laboratory animals fed ethylene glycol in large amounts repeatedly during pregnancy.
<b>Fertility effects</b>	No known significant effects or critical hazards.

## Section 12. Ecological information

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

### Toxicity

Product/ingredient name	Species	Test/Result	Exposure	Effects	Remarks
Ethylene glycol	Algae	Acute EC50 >100 mg/l	72 hours	-	-
	Daphnia	Acute EC50 >100 mg/l	48 hours	-	-
	Fish	Acute LC50 >1000 mg/l	96 hours	-	-
	Algae	Chronic NOEC >100 mg/l	72 hours	-	-

### Persistence and degradability

Expected to be biodegradable.

Product/ingredient name	Test	Result	Remarks
Ethylene glycol	OECD 301A	>90 % - Readily - 10 days	-

### Bioaccumulative potential

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

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Ethylene glycol	-1.36	-	low

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

**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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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 spilt material and runoff and contact with soil, waterways, drains and sewers. 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.

## Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

Special precautions for user Not available.

Transport in bulk according to IMO instruments Not available.

## Section 15. Regulatory information

### Regulation according to other foreign laws

<a href="#">Australia inventory (AIC)</a>	All components are listed or exempted.
<a href="#">Canada inventory status</a>	All components are listed or exempted.
<a href="#">China inventory (IECSC)</a>	All components are listed or exempted.
<a href="#">REACH Status</a>	<input checked="" type="checkbox"/> For the REACH status of this product please consult your company contact, as identified in Section 1.
<a href="#">Japan inventory (CSCL)</a>	All components are listed or exempted.
<a href="#">Korea inventory (KECI)</a>	All components are listed or exempted.
<a href="#">Philippines inventory (PICCS)</a>	All components are listed or exempted.
<a href="#">United States inventory (TSCA 8b)</a>	Not determined.
<a href="#">Taiwan Chemical Substances Inventory (TCSI)</a>	All components are listed or exempted.
<a href="#">Harmful Chemicals List</a>	Listed

### International regulations

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

## Section 16. Other information

### History

<a href="#">Date of issue/Date of revision</a>	03/01/2024.
<a href="#">Date of previous issue</a>	17/11/2023.
<a href="#">Prepared by</a>	Product Stewardship



## Section 16. Other information

### Key to abbreviations

ACGIH = American Conference of Industrial Hygienists  
CAS Number = Chemical Abstracts Service Registry Number  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IMDG = International Maritime Dangerous Goods  
OEL = Occupational Exposure Limit  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]  
SDS = Safety Data Sheet  
STEL = Short term exposure limit  
TWA = Time weighted average  
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods. 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

### References

Not available.

✔ Indicates information that has changed from previously issued version.

### 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.