

SAFETY DATA SHEET



Castrol React DOT 4 Low Temp

In accordance with Industrial Safety and Health Act

Section 1. Chemical product and company identification

Product name Castrol React DOT 4 Low Temp
Code 467285-GB13
SDS no. 467285
Supplier BP Korea Ltd.
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Republic of Korea

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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 Brake fluids.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Section 2. Hazards identification

GHS Classification  REPRODUCTIVE TOXICITY - Category 2

GHS label elements, including precautionary statements

Symbol



Signal word Warning


Hazard statements  H361 - Suspected of damaging fertility or the unborn child.

Precautionary statements

General

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

Prevention

 P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves, protective clothing and eye or face protection.

Response

P308 + P313 - IF exposed or concerned: Get medical attention.

Storage

P405 - Store locked up.

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

Polyalkylene glycol ethers / glycols

Hazardous ingredients

Ingredient name	Synonym	CAS number	%
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	Ethanol, 2-[2-(2-methoxyethoxy)ethoxy]-, 1,1',1''-triester with boric acid (H3BO3); Ethanol, 2-[2-(2-methoxyethoxy)ethoxy]-, triester with boric acid; Ethanol, 2-[2-(2-methoxyethoxy)ethoxy]-, triester with boric acid (H3BO3); tris{2-[2-(2-methoxyethoxy)ethoxy]ethyl} borate; Triethylene glycol monomethyl ether borate; 2-[2-(2-Methoxyethoxy)ethoxy] ethanol, triester with boric acid (H3BO3)	30989-05-0	74.9
2-(2-methoxyethoxy)ethanol	diethylene glycol monomethyl ether; Ethanol, 2-(2-methoxyethoxy)-; Diethylene glycol, monomethyl ether; Methyl carbitol; Methyl diglycol ether; compound stabilisers containing by weight 15 % or more but not more than 40 % of sodium perchlorate (CAS RN 7601-89-0) and not more than 70 % of 2-(2-methoxyethoxy)ethanol (CAS RN 111-77-3); methyl digol; DEGME; DIETHYLENE GLYCOL METHYL ETHER; DEGME; Methoxydiglycol; Diethylene glycol and triethylene glycol monomethyl ether	111-77-3	2.99
Di-isopropanolamine	di-isopropanolamine; 2-Propanol, 1,1'-iminobis-; Diisopropanolamine; 2-Propanol, 1,1'-iminodi-; 1,1'-Iminobis-2-propanol; Bis(2-propanol) amine; 1,1'-Iminodi-2-propanol; DIPA; 110924 DR DI-Isopropanolamine; disopropanolamide; 1-(2-hydroxypropylamino) propan-2-ol	110-97-4	2.99
3,6,9,12-tetraoxahexadecan-1-ol	Tetraethylene glycol, monobutyl ether; tetraethylene glycol	1559-34-8	2.99

Section 3. Composition/information on ingredients

	monobutyl ether; Tetraethylene glycol butyl ether; 1-Hexadecanol, 3,6,9,12-tetraoxa-; Polyoxyalkylene (C 2-4,8) monoalkyl(or alkenyl) (C 1-24) ether (n=1-150); Butoxytetraethylene glycol; Tetraethyleneglycol (mono) butylether; Butyltetraglycol ether; Butyl tetraglycol; TETRAETHYLENE GLYCOL N-BUTYL ETHER; HEXADECAN-1-OL, 3,6,9,12-TETRAOXA-		
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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.

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 skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.

Inhalation

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

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.

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

Specific treatments

No specific treatment.

Notes to physician

Treatment should in general be symptomatic and directed to relieving any effects. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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

Suitable

In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.

Not suitable

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.

Section 5. Firefighting measures

Hazardous thermal decomposition products

Combustion products may include the following:
carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)
nitrogen oxides (NO, NO₂ etc.)

Special protective equipment for fire-fighters

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

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.

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 ingest. Avoid breathing vapour or mist. 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

Ingredient name	Exposure limits
None.	

Biological exposure indices

No exposure indices known.

Other ingredients including trade secret: not applicable

Recommended monitoring procedures

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.

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

Section 8. Exposure controls/personal protection

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

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

Appearance

Physical state

Liquid.

Colour

Yellow.

Odour

Not available.

Odour threshold

Not available.

pH

7 to 8.5 [Conc. (% w/w): 100%]

Melting/freezing point

Not available.

Boiling point, initial boiling point, and boiling range

265°C (509°F)

Flash point

Closed cup: 135.5°C (275.9°F) [Pensky-Martens]

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.

Lower and upper explosive (flammable) limits

Not applicable. Based on - Physical state

Not available.

Vapour pressure

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
[2-(2-methoxyethoxy)ethoxy]ethyl orthoborate	0.9	0.12		3.08	0.41	OECD 104
2-(2-methoxyethoxy)ethanol	0.22	0.029				

Solubility(ies)

Media	Result
Water	Miscible in water.

Vapour density

Not available.

Relative density

Not available.

Density

1060 kg/m³ (1.06 g/cm³) at 20°C

Partition coefficient: n-octanol/water

Not applicable.

Auto-ignition temperature

>200°C (>392°F)

Decomposition temperature

Not available.

Viscosity

Not available.

Molecular weight

Not applicable as it is a mixture

Particle characteristics

Median particle size

Not applicable.

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. Do not use in brake systems requiring mineral oil. On contact these fluids will soften and may lift industrial coatings and paints.
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, Eyes.

Acute toxicity

Inhalation	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
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: reduced foetal weight increase in foetal deaths skeletal malformations
Skin	Adverse symptoms may include the following: irritation dryness cracking reduced foetal weight increase in foetal deaths skeletal malformations
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
Di-isopropanolamine	LD50 Dermal	Rabbit	16000 mg/kg	-	-
	LD50 Oral	Rat	>2000 mg/kg	-	-

Irritation/Corrosion

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

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

Section 11. Toxicological information

Serious eye damage/eye irritation

Not available for product and all ingredients.

Respiratory Irritation

Not available for product and all ingredients.

Sensitisation

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

Suspected of damaging the unborn child.

Developmental effects

No known significant effects or critical hazards.

Fertility effects

Suspected of damaging fertility.

Specific target organ toxicity (single exposure)

Not available for product and all ingredients.

Specific target organ toxicity (repeated exposure)

Not available for product and all ingredients.

Potential chronic health effects

General

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Aspiration hazard

Not available for product and all ingredients.

Section 11. Toxicological information

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.

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

Special precautions for user Not available.

Section 15. Regulatory information

Regulation according to ISHA

ISHA article 117 (Harmful substances prohibited from manufacture) None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) None of the components are listed.

Exposure Limits of Chemical Substances and Physical Factors

None of the components have an OEL.

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors) None of the components are listed.

ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement) None of the components are listed.

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up) None of the components are listed.

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) None of the components are listed.

Regulation according to Chemicals Control Act

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

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

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

CCA Article 11 (TRI) The following components are listed: Boron and its compounds

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

Dangerous Materials Safety Management Act
Class: Class 4 - Flammable Liquid
Item: 5. Class 3 petroleums - Water soluble liquid
Threshold: 4000 L
Danger category: III
Signal word: Contact with sources of ignition prohibited

Wastes regulation Designated Waste

Regulation according to other foreign laws

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

Canada inventory All components are listed or exempted.

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 (CSCL) All components are listed or exempted.

Section 15. Regulatory information

Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
Taiwan inventory (TCSI)	Not determined.
United States inventory (TSCA 8b)	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

14/06/2019

Number of revisions and date of last revision

4 17/03/2023.

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.