Section 1. Identification

Product name: Castrol Radicool SF-O Premix
SDS #: 467305
Code: 467305-US85

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

Product use: Automotive coolant system (antifreeze/anticorrosion) concentrate. For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Supplier: BP Lubricants USA Inc.
1500 Valley Road
Wayne, NJ 07470
Telephone: (973) 633-2200

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
Outside the US: +1 703-527-3887 (CHEMTREC)

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

Section 2. Hazards identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture:
- ACUTE TOXICITY (oral) - Category 4
- SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms

Signal word: Warning
Hazard statements:
- Harmful if swallowed.
- May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention:
- Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response:
- Get medical attention if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.

Storage:
- Not applicable.

Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified:
- None known.
Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredient name</td>
<td>CAS number</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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 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**

**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. Get medical attention if symptoms occur. Clean shoes thoroughly before reuse.

**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.

**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.

**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**

**Notes to physician**

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

Section 5. Fire-fighting measures

**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.

**Specific hazards arising from the chemical**
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, CO₂) (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 spilled material. Avoid breathing vapor 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 vapor, 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 spilled 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 materials 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 release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Collect and absorb 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 spilled 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). Do not breathe vapor 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.

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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ethylene glycol

ACGIH TLV (United States).
STEL: 10 mg/m³ 15 minutes. Issued/Revised: 3/2017 Form: Inhalable fraction. Aerosol only.
STEL: 50 ppm 15 minutes. Issued/Revised: 3/2017 Form: Vapor fraction
TWA: 25 ppm 8 hours. Issued/Revised: 3/2017 Form: Vapor fraction
### Section 8. Exposure controls/personal protection

**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.

### 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.

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.

#### Eye/face 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.

**Body 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.

**Other skin protection**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**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

**Appearance**
- **Physical state**: Liquid.
- **Color**: Red. Yellow.
- **Odor**: Not available.
- **Odor threshold**: Not available.
- **pH**: 4.0 to 8.6
- **Melting point**: Not available.
- **Boiling point**: 108 to 158°C (226.4 to 316.4°F)
- **Flash point**: Closed cup: >116°C (>240.8°F)
- **Evaporation rate**: Not available.
- **Flammability (solid, gas)**: Not applicable. Based on - Physical state
- **Lower and upper explosive (flammable) limits**: Not available.
- **Vapor pressure**: Not available.
- **Vapor density**: Not available.
- **Density**: Not available.
- **Relative density**: Not available.
- **Solubility**: Soluble in water.
- **Partition coefficient: n-octanol/water**: Not available.
- **Auto-ignition temperature**: Not available.
- **Decomposition temperature**: Not available.
- **Viscosity**: Not available.

**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 polymerization will not occur.

**Conditions to avoid**
No specific data.

**Incompatible materials**
Reactive or incompatible with the following materials: oxidizing 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**

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>Category 2</td>
<td>Not determined</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

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

**Potential acute health effects**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Product code</th>
<th>Page: 5/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castrol Radicool SF-O Premix</td>
<td>467305-US85</td>
<td></td>
</tr>
<tr>
<td>Version 2</td>
<td>Date of issue</td>
<td>05/25/2018.</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Eye contact  No known significant effects or critical hazards.
Skin contact  No known significant effects or critical hazards.
Inhalation  Vapor inhalation under ambient conditions is not normally a problem due to low vapor 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.
Ingestion  Adverse symptoms may include the following: nausea or vomiting

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact  No specific data.
Skin contact  No specific data.
Inhalation  May be harmful by inhalation if exposure to vapor, mists or fumes resulting from thermal decomposition products occurs.
Ingestion  Adverse symptoms may include the following: nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
Potential immediate effects  Not available.
Potential delayed effects  Not available.

Long term exposure
Potential immediate effects  Not available.
Potential delayed effects  Not available.

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.
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.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>1000 mg/kg</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

Toxicity
No testing has been performed by the manufacturer.

Persistence and degradability
Expected to be biodegradable.

Bioaccumulative potential
This product is not expected to bioaccumulate through food chains in the environment.
Section 12. Ecological information

Mobility
Spillages may penetrate the soil causing ground water contamination.

Other adverse effects
No known significant effects or critical hazards.

Other ecological information
Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal considerations

Disposal methods
The generation of waste should be avoided or minimized 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 spilled 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

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3082</td>
<td>Not available.</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Environmentally hazardous substance, liquid, n.o.s.. Marine pollutant RQ (Ethylene glycol)</td>
<td>Not available.</td>
<td>-</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>9</td>
<td>Not available.</td>
<td>-</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Non-bulk packages of this product are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by inland waterway. The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Product name: Castrol Radicool SF-O Premix
Version: 2
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Product code: 467305-US85
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Language: ENGLISH
Section 14. Transport information

9090.9 lbs / 4127.3 kg [991.19 gal / 3752.1 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Special precautions for user
Not available.

Transport in bulk according to Annex II of MARPOL and the IBC Code
Not available.

Section 15. Regulatory information

U.S. Federal regulations
United States inventory (TSCA 8b)
All components are listed or exempted.

SARA 302/304

Composition/information on ingredients
No products were found.

SARA 311/312
Classification
ACUTE TOXICITY (oral) - Category 4
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

SARA 313

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
<td>45 - 55</td>
</tr>
</tbody>
</table>

Form R - Reporting requirements
Supplier notification

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts
The following components are listed: ETHYLENE GLYCOL; 1,2-DIHYDROXYETHANE

New Jersey
The following components are listed: ETHYLENE GLYCOL; 1,2-ETHANEDIOL

Pennsylvania
The following components are listed: 1,2-ETHANEDIOL

California Prop. 65

WARNING: This product can expose you to Ethylene Glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Other regulations

Australia inventory (AICS)
All components are listed or exempted.

Canada inventory
All components are listed or exempted.

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

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

Korea inventory (KECI)
At least one component is not listed.

Philippines inventory (PICCS)
All components are listed or exempted.
Section 15. Regulatory information

Taiwan Chemical Substances Inventory (TCSI)

REACH Status
For the REACH status of this product please consult your company contact, as identified in Section 1.

Section 16. Other information

National Fire Protection Association (U.S.A.)

Flammability
Health
Instability/Reactivity
Special

History
Date of issue/Date of revision 05/25/2018.
Date of previous issue 06/09/2017.
Prepared by Product Stewardship
Key to abbreviations
ACGIH = American Conference of Industrial Hygienists
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS Number = Chemical Abstracts Service Registry Number
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
OEL = Occupational Exposure Limit
SDS = Safety Data Sheet
STEL = Short term exposure limit
TWA = Time weighted average
UN = United Nations
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 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 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, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

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.

Product name Castrol Radicool SF-O Premix
Product code 467305-US85
Version 2
Date of issue 05/25/2018.
Format US
Language ENGLISH