

# SAFETY DATA SHEET



ON Immersion Cooling Fluid DC 20

## Section 1. Identification

GHS product identifier	ON Immersion Cooling Fluid DC 20
Product code	470661-DE01
SDS no.	470661
<b><u>Relevant identified uses of the substance or mixture and uses advised against</u></b>	
Use of the substance/ mixture	Thermal Management Fluid For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Manufacturer	
Supplier	Castrol Australia Pty Ltd Level 17, 717 Bourke Street Docklands, Victoria 3008 ABN 87 008 459 407 <a href="http://www.castrol.com.au">www.castrol.com.au</a>
	Tel: +61 (03) 9268 4111 +61 2801 44558 (or 1800 14 14 74 within Australia)
EMERGENCY TELEPHONE NUMBER	
OTHER PRODUCT INFORMATION	Technical Advice Helpline Number: 1300 557 998

## Section 2. Hazard(s) identification

Classification of the substance or mixture	ACUTE TOXICITY (inhalation) - Category 4 ASPIRATION HAZARD - Category 1
<b><u>GHS label elements</u></b>	
Hazard pictograms	
Signal word	DANGER
Hazard statements	H304 - May be fatal if swallowed and enters airways. H332 - Harmful if inhaled.
<b><u>Precautionary statements</u></b>	
General	P102 - Keep out of reach of children. P101 - If medical advice is needed, have product container or label at hand.
Prevention	P271 - Use only outdoors or in a well-ventilated area. P261 - Avoid breathing vapour.
Response	P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
Storage	P405 - Store locked up.
Disposal	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Not applicable.

## Section 2. Hazard(s) identification

**Other hazards which do not result in classification** Defatting to the skin.  
Contact with hot product may cause burns.

## Section 3. Composition and ingredient information

**Substance/mixture** Mixture  
Synthetic base stock. Proprietary performance additives.

Ingredient name	% (w/w)	CAS number
Dec-1-ene, dimers, hydrogenated	≥90	68649-11-6

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.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

## Section 4. First aid measures

### Description of necessary first aid measures

<b>Eye contact</b>	Hot product - Flood with water to dissipate heat. In the event of any product remaining, do not try to remove it other than by continued irrigation with water. Obtain medical attention immediately. Cold product - Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.
<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if symptoms occur.
<b>Skin contact</b>	Hot Product - Flood skin with cold water to dissipate heat, cover with clean cotton or gauze, obtain medical advice immediately. Cold Product - Wash contaminated skin with soap and water. Remove contaminated clothing and wash underlying skin as soon as reasonably practicable. If skin irritation or rash occurs: Get medical advice/attention.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical attention immediately.

### 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>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects. Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.
<b>Specific treatments</b>	No specific treatment.
<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.

## Section 5. Firefighting measures

### Extinguishing media

**Suitable extinguishing media**

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

**Unsuitable extinguishing media**

Do not use water jet.

### **Specific hazards arising from the chemical**

During use heat transfer oils may be thermally degraded leading to the formation of volatile hydrocarbons with flash points considerably lower than the original product. It is therefore essential that the system is not drained while hot unless an inert gas system is used to displace flammable gaseous residues. Adequate ventilation is essential during draining operations as hot oil will fume.

The temperature at which spent product is drained is a compromise between the need to have the oil sufficiently hot to facilitate drainage, the need to avoid fuming and the dangers of fire from degraded oil with a low flash point. It is recommended therefore that spent oil is drained at a temperature of less than 100°C. During system filling and venting, care should be taken to ensure that hot oil is not pumped through the expansion tank. A failure to prevent this could, under certain conditions, lead to the creation of a flammable atmosphere in the expansion tank. As the expansion tank is being filled it is essential that the gases and vapours formed should be free to vent to an open atmosphere where they can quickly disperse. Oil soaked lagging may spontaneously ignite and should be replaced by fresh lagging as soon as possible. Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate.

Dispose of safely immediately after use. In a fire or if heated, a pressure increase will occur and the container may burst.

None expected.

### **Hazardous thermal decomposition products**

### **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.

## Section 6. Accidental release measures

### 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). Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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

**E**ating, 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. Contaminated work clothing should not be allowed out of the workplace. 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 Avoid significant changes in temperature to prevent humidity ingress.

## Section 8. Exposure controls and personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Dec-1-ene, dimers, hydrogenated	<b>DFG MAC-values list (Germany). [Polyalphaolefins]</b> PEAK: 20 mg/m <sup>3</sup> , 4 times per shift, 15 minutes. Issued/Revised: 7/2010 Form: respirable fraction TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 7/2010 Form: respirable fraction

#### Biological exposure indices

No exposure indices known.

## Section 8. Exposure controls and 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

Hot material: to prevent thermal burns wear a helmet, full face visor and heat resistant neck flap / apron.

Cold material: wear safety glasses with side shields.

#### Skin protection

##### Hand protection

Wear suitable gloves. Hot material: to prevent thermal burns wear heat resistant and impervious gauntlets/gloves.

Cold material: Wear chemical resistant gloves. Recommended: nitrile 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.

##### 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

Respiratory protective equipment must be checked to ensure it fits correctly each time it is worn.

Use with adequate ventilation.

In case of insufficient ventilation, wear suitable respiratory equipment.

Provided an air-filtering/air-purifying respirator is suitable, a filter for particulates can be used. Use filter type P or comparable standard.

Air-filtering respirators, also called air-purifying respirators, will not be adequate under conditions of oxygen deficiency (i.e. low oxygen concentration), and would not

## Section 8. Exposure controls and personal protection

be considered suitable where airborne concentrations of chemicals with a significant hazard are present. In these cases air-supplied breathing apparatus will be required. A combination filter for particles, organic gases and vapours (boiling point >65°C) may be required if mist or fume is present as well as vapour. Use filter type AP or comparable standard.

Approved air-supplied breathing apparatus must be worn where there is a risk of exceeding the exposure limit of carbon monoxide

Approved air-supplied breathing apparatus must be worn where there is a risk of exposure to hazardous combustion and thermal decomposition products.

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.

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.

### Thermal hazards

Wear impervious and heat resistant coveralls covering the full body and limbs.

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.

### Refer to standards:

Respiratory protection:AS/NZS 1715 and AS/NZS 1716

Gloves:AS/NZS 2161.1

Eye protection:AS/NZS 1336 and AS/NZS 1337

## 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

Colourless.

#### Odour

Not available.

#### Odour threshold

Not available.

#### pH

Not applicable.

#### Melting point

Not available.

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

Not available.

#### Flash point

Closed cup: 159°C (318.2°F) [Pensky-Martens ASTM D 93]

#### Evaporation rate

Not available.

#### Flammability

Not available.

#### Lower and upper explosion limit/flammability limit

Not available.

#### Vapour pressure

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Dec-1-ene, dimers, hydrogenated	0.014	0.0019	ASTM E 1194-87			

#### Relative vapour density

Not available.

#### Relative density

Not available.

#### Density

797 kg/m<sup>3</sup> (0.797 g/cm<sup>3</sup>) at 15°C

#### Solubility(ies)

## Section 9. Physical and chemical properties

Media	Result
water	Not soluble
<b>Solubility in water</b>	Not available.
<b>Partition coefficient: n-octanol/water</b>	Not applicable.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	 Kinematic: 5.12 mm <sup>2</sup> /s (5.12 cSt) at 40°C Kinematic: 1.6 to 1.8 mm <sup>2</sup> /s (1.6 to 1.8 cSt) at 100°C (ASTM D 445)
<b>Particle characteristics</b>	
<b>Median particle size</b>	Not applicable.

## Section 10. Stability and reactivity

<b>Reactivity</b>	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
<b>Conditions to avoid</b>	Avoid all possible sources of ignition (spark or flame).
<b>Incompatible materials</b>	Reactive or incompatible with the following materials: oxidising materials.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Aspiration hazard

Name	Result
 Dec-1-ene, dimers, hydrogenated	ASPIRATION HAZARD - Category 1

<b>Information on likely routes of exposure</b>	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
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### Potential acute health effects

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	Harmful if inhaled.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

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

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	Adverse symptoms may include the following: nausea or vomiting

## Section 11. Toxicological information

### 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.
<b>Skin contact</b>	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
<b>Ingestion</b>	Ingestion of large quantities may cause nausea and diarrhoea.
<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Teratogenicity</b>	No known significant effects or critical hazards.
<b>Developmental effects</b>	No known significant effects or critical hazards.
<b>Fertility effects</b>	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

<b>Route</b>	<b>ATE value</b>
Inhalation (dusts and mists)	1.5 mg/l

## Section 12. Ecological information

### Persistence and degradability

Expected to be biodegradable.

### Bioaccumulative potential

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

### Mobility in soil

<b>Soil/water partition coefficient (K<sub>oc</sub>)</b>	Not available.
<b>Mobility</b>	Spillages may penetrate the soil causing ground water contamination.

### 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 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.

### Special Precautions for Landfill or Incineration

No additional special precautions identified.

## Section 14. Transport information

	ADG	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.
Additional information	-	-	-

Special precautions for user      Not available.

## Section 15. Regulatory information

### Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

### Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

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

Not listed.

### International lists

#### National inventory

#### REACH Status

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

#### Australia inventory (AIIC)

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 (CSCL)

All components are listed or exempted.

#### Korea inventory (KECI)

All components are listed or exempted.

#### Philippines inventory (PICCS)

All components are listed or exempted.

#### Taiwan Chemical Substances Inventory (TCSI)

All components are listed or exempted.

#### United States inventory (TSCA 8b)

All components are active or exempted.

## Section 16. Any other relevant information

### History

<b>Date of printing</b>	10/18/2024
<b>Date of issue/Date of revision</b>	10/18/2024
<b>Date of previous issue</b>	8/28/2024
<b>Version</b>	4.01
<b>Prepared by</b>	Product Stewardship
<b>Key to abbreviations</b>	<p>ADG = Australian Dangerous Goods ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) NOHSC = National Occupational Health and Safety Commission REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006] STEL = Short term exposure limit SUSMP = Standard Uniform Schedule of Medicine and Poisons UN = United Nations TWA = Time weighted average VOC = Volatile Organic Compound SADT = Self-Accelerating Decomposition Temperature 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</p>

### Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method

 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.

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