



Material Safety Data Sheet Radi-CAL™ R1

1. Substance/ Preparation Identification & Company

Radi-CAL™ R1 Brake Fluid **Product Name Intended Use** As a hydraulic fluid in automotive brake and clutch systems.

(CP7551-20)

Description AP Racing Competition brake & fluid Company Wheler Road Telephone +44 (0) 24 76 639595

Fax +44 (0) 24 76 639559 Coventry CV3 4LB **Email** sales@apracing.co.uk

2. Hazards Identification

Classification This product is classified as Health Moderately Irritating to eyes.

> "Irritant" **Hazards**

Mildly irritating to skin. When R36: Irritating to eyes. ingested it may be absorbed and

cause renal damage at high

dosage

Physical Product is not classified as Environmental Low

Hazards flammable but will burn **Hazards**

3. Composition/Information on Ingredients

General Blend of polyglycol ethers, glycol ether borate esters and polyglycols with

added corrosion and oxidation inhibitors.

Hazardous Ingredients

Conc. % CAS **EINECS** Hazard **Risk Phrases** Classification Butyl tri glycol 20-45 143-22-6 205-592-6 R41 Di ethylene glycol 111-46-6 203-872-2 Xn <25 R22 Methyl diglycol <5 111-77-3 203-906-6 Xn R63

4. First Aid Measures

Skin Contact Remove contaminated clothing. Wash affected skin with soap and water. If

irritation persists seek medical attention.

Flush eye with water for at least 10 minutes. If irritation persists seek medical **Eye Contact**

attention.

Inhalation Remove to fresh air. If recovery is not rapid, seek medical attention.

Obtain medical advice immediately. If patient is fully conscious, wash out mouth Ingestion

with water and give plenty of water to drink. Induce vomiting only under medical

supervision.

Note to Medical personnel seeking to administer first aid are referred to the services of the Physicians:

Poisons Information Service who can advise in such instances. There is no

specific antidote and treatment of over exposure should be directed at control of

symptoms and the patient's clinical condition.

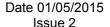
5. Fire Fighting Measures

Extinguishing Media Fire Hazards

Protective Equipment

Alcohol resistant foam, dry powder, carbon dioxide or water (fog or fine spray) No special risk – combustion products may contain harmful or irritant fumes In extreme conditions self-contained breathing apparatus should be worn

6. Accidental Release Measures





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Personal Precautions Avoid contact with eyes, skin, and clothing. When cleaning up large spillages,

suitable protective clothing should be worn including eye protection and

impervious gloves

Environmental Precautions Clean Up Methods

Prevent from entering drains, ditches or rivers. If this occurs inform relevant

authorities. Prevent gross contamination of soil

Contain spillage using sand or earth. Remove all material to a suitable container for subsequent disposal. Label Salvage Container appropriately.

Flush contaminated area with plenty of water

7. Handling & Storage

Handling No specific handling precautions are necessary.

Storage Suitable bulk storage vessels are mild/stainless steel tanks fitted with a dry air breathing

system or tight head steel drums. Do not store in lined tanks or drums. Brake fluid absorbs water from the atmosphere - always keep containers tightly closed. Avoid contamination with any other substances and in particular with mineral oils which are

incompatible.

Specific Use Users are referred to the Specification SAE J1707 "Service Maintenance of Brake

Fluids".

8. Exposure Controls/ Personal Protection

Exposure Limits Di ethylene glycol (2, 2' Oxidiethanol) 8h TWA: 23ppm / 101mg/m3 (EH40)

No official WEL figures available for the entire preparation. However, 8 h

TWA limits of 100 mg/m3 vapour or 10 mg/m3 particulate should be adhered to. Due to the low vapour pressure of the preparation, vapour is not

generally a problem at ambient temperature. Handling equipment should

minimise the formation of mists.

Engineering Measures

Skin Protection Where significant exposure is possible wear impervious body covering. It is

recommended that showers are provided at locations where accidental

exposure may occur.

Hand Protection Wear suitable impervious gloves to avoid prolonged or repeated contact.

Polyethylene natural or butyl rubber and PVC are suitable materials.

Eye Protection Wear close-fitting goggles where there is a risk of splashing. Eye baths

should be provided at locations where accidental exposure may occur.

Respiratory Protection No specific precautions at ambient temperature. If fluid is being heated or

atomised, use suitable engineering control measures.

Other Protective Equipment

Environmental

Exposure Controls

No special measures required.

9. Physical & Chemical Properties

DescriptionBlend of polyglycol ethers, glycol ether borate esters and polyglycols with added

corrosion and oxidation inhibitors.

Colour Clear liquid - colourless to amber (although some grades Visual

of brake fluid may be dyed.)

 Odour
 Bland
 N/A

 pH
 7.0 to 11.5
 SAE J 1703

 Boiling Point
 > 205 °C.
 SAE J 1703

 Flash Point
 > 80 °C.
 IP 35



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DIN 51757

SAE J 1703

OECD 117

Auto Ignition > 300 °C. ASTM D 286

Temperature

Flammability Limits In Air: Not established Density @ 20°C 1.010 - 1.070 g/ml

Solubility In water: miscible in any ratio

In ethanol: miscible in any ratio

Melting point < -50 °C. **Partition Coefficient** < 2.0 (all main ingredients)

n-Octanol/Water

Viscosity @ 20°C Approx. 5-10 cSt ASTM D 445 Vapour pressure@ < 2 millibars Reid

20°C

Vapour Density Not established **Evaporation Rate** Nealiaible

10. Stability & Reactivity

Conditions to Avoid Product is stable under normal conditions. Glycol Ethers can form

peroxides on storage – do not distil to dryness.

Materials to Avoid Strong oxidising agents. For user safety, brake fluid should never be

contaminated with any other substance.

Hazardous None known.

Decomposition Products

11. Toxicological Information (Comments may be based on analogy with similar products)

Skin Contact Not classified as irritant (Test Method OECD 404) although some sensitive

> individuals may be affected. Repeated contact may de-fat the skin and cause dermatitis. Product does not contain any known sensitisers. Acute percutaneous

toxicity is low LD50 (sk) Rat = > 2000 mg/kg.

Eye Contact Inhalation

Product is expected to have an irritating effect on the eye (OECD Test Method 405). Unlikely to be hazardous by inhalation at ambient temperatures due to low vapour pressure. If product is inhaled at elevated temperatures or as an aerosol it may irritate respiratory tract and may cause systemic effects similar to ingestion (see

below).

Ingestion Product is of relatively low acute oral toxicity – however, if any significant amount is

ingested there is a risk of renal damage which in extreme cases could lead to

kidney failure, coma and death. LD50 (oral) Rat = > 5000 mg/kg.

Sparse experience indicates lethal dose in man could be considerably less.

General – There are no reports of long term adverse affects in man. **Chronic Toxicity**

Carcinogenicity - Not known to be carcinogenic.

Mutagenicity - Not known to be mutagenic.

Reproductive Toxicity - Major ingredients have not been shown to cause significant fertility or development problems at levels which are not themselves toxic to the animal concerned. One minor ingredient – Methyl diglycol – has been shown to affect foetus development in some studies and is classified as R63 – possible risk of

harm to the unborn child.

12. Ecological Information (Comments may be based on analogy with similar products)

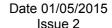
Ecotoxicity Product is of low to medium ecotoxicity

LC50 = > 100 mg/l (Oncorhynchus Mykiss) Fish 96h

EC50 = Not Determined but expected to be virtually non Daphnia 48h

72h EC50 = Not Determined but expected to be virtually non Algae

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toxic.

Mobility Soluble in water and will partition to aqueous phase. Volatilisation from water to air

not expected. Mobile in soil until degraded.

Product is inherently biodegradable and is expected to be readily biodegradable. Persistence/

OECD 302B (Zahn Wellans/ EMPA) = 100% elimination at 21 days. Degradability

If admitted into adapted biological water treatment plants, no significant adverse

effects on the degrading action of the live sludge are expected.

Bio Not expected to bio accumulate - Log POW for all main ingredients = <2.0

Accumulative Potenial

13. Disposal Considerations

Disposal Not significant. As for spillages - avoid liquid entering drains, rivers etc.

Dangers Disposal

Controlled incineration or recycling is recommended.

Measures

Dispose of in accordance with local and national regulations. In the E.U. used brake Regulations

fluids are classified as Hazardous Waste (Directive 91/689/EEC). EWC number:

16.01.13.

14. Transport Information

UN No /Class None

Not classified ADR/RID

IMO/IMDG Not classified as hazardous

Marine Pollutant

IATA/IACO

Not classified

Class

15. Regulatory Information

E.U. Xi - Irritant

Classification

Risk Phrases R36 - Irritating to eyes.

Safety Phrases S2 - Keep out of reach of children.

S26 (Modified) - In case of contact with eyes, rinse immediately with water for 10

minutes. If irritation persists seek medical advice.

S46 - If swallowed seek medical advice immediately and show this document or

Restrictions on

To be in accord with local and national regulations. In the U.K. this would include

Use or Exposure the HASAWA and COSHH.

16. Other Information

R22 – Harmful if swallowed. Risk (R) Phrases

R41 – Risk of serious damage to eyes.

R63 – Possible risk of harm to the unborn child.

Legal Disclaimer The information contained herein is based on the present knowledge held by AP

Racing and does not constitute the users own assessment of work place risk and

substance use as required by other Health and Safety legislation.