



Radi-CAL™ R4

Material Safety Data Sheet

Date 02/03/2017
Issue 3

1. Identification of the substance / mixture and of the company / undertaking

1.1 Product identifier: Radi-CAL™ R4 Brake fluid CP6005-20

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

Identified uses: Hydraulic fluid for use in automotive brake and clutch systems

1.3 Details of the supplier of the MSDS:

Address: AP Racing
Wheler Road
Coventry
CV3 4LB
Telephone: +44 (0) 24 76 639595
Fax: +44 (0) 24 76 639559
Email: sales@ap racing.co.uk

1.4 Emergency telephone number:

+44 (0) 24 76 639595
Hours 09.00-17.00 Mon-Fri GMT
Alternatively, if in the UK dial 111 for NHS urgent care.
For contact details of Poisons centres in other countries, see World Health Organisation webpage
www.who.int/gho/phe/chemical_safety/poisons_centres/en/ from which there is a directory of poisons centres of member states.

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to regulation 1272/2008 (CLP/GHS):. Eye Irritant-category 2; H319 Causes serious eye irritation.

2.2 Label Elements

Labelling according to 1272/2008 (CLP/GHS)

Hazard Pictogram/s;



Signal word: "Warning"

Hazard phrases; H319 Causes serious eye irritation;

Precautionary phrases recommended; P102 -keep out of the reach of children. P305/P351/P338 –IF IN EYES rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P337/313 –If eye irritation persists, get medical advice. P301/311 –If swallowed, call a poison centre or doctor/physician and have container or label at hand.

2.3 Other Hazards

Product is not classified as flammable or combustible but will burn.

Product is not classified as PBT or vPvB according to Annex XIII.

3. Composition / information on ingredients

3.1 Substances

Not applicable.



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3.2 Mixtures

General description. Blend of polyglycol ethers, glycol ether esters and polyglycols with added corrosion and oxidation inhibitors.

General description. Blend of poly glycol ether esters with added corrosion and oxidation inhibitors.

Hazardous Ingredients

| Ingredient | CAS No. | Registration No. | % w/w | Classification 1272 / 2008 |
|---------------|---------|------------------|-------|---|
| Amine mixture | N/A | Pre-registered | 0-2 | Acute toxic oral –Class 4; H302 Skin Corrosion –Cat 1; H314 Aquatic acute class 1; H400 |

See Section 16 for explanation of the classification codes.

4. First aid Measures

4.1 Description of first aid measures

4.1.1 General Advice - First Aid responders should pay attention to self-protection and use any recommended protective clothing –see section 8.

4.1.2 Inhalation -Remove victim to fresh air –and keep at rest. If recovery is not rapid, seek medical attention.

4.1.3 Skin contact- Remove contaminated clothing. Wash affected skin with soap and water. If irritation persists, seek medical attention.

4.1.4 Eye contact - Flush eye with plenty of water for at least 10 minutes. If irritation persists, seek medical attention.

4.1.5 Ingestion - Obtain medical advice immediately. If patient is fully conscious, wash out mouth with water and give plenty of water to drink. If medical attention is delayed and an adult has swallowed several ounces, give 90 -120ml of hard liquor such as 40%v/v spirits. For children give proportionately less at a rate of 2ml / kg body-weight. Never give anything by mouth to an unconscious person. Induce vomiting only under medical supervision.

4.2 Most important symptoms and effects both acute and delayed. The most important symptoms and effects are described in sections 2,11.

4.3 Indication of any immediate medical attention and special treatment needed.

Medical personnel seeking to administer first aid are referred to the services of the 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. Firefighting measures

5.1 Extinguishing Media

Suitable extinguishing media - Alcohol resistant foam, dry powder, carbon dioxide or water (fog or fine spray).

Unsuitable Extinguishing Media - Water jets (although these may be used to cool adjacent containers).



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5.2 Special hazards arising from the substance or mixture.

No special risk – combustion products may contain harmful or irritant fumes. Containers may rupture from gas generation if exposed to fire.

5.3 Advice for fire fighters

Eye protection should be worn. Keep containers cool with water spray. In extreme conditions, self-contained breathing apparatus and protective suit should be worn.

6. Accidental release measures

6.1 Personal Precautions, protective equipment and emergency procedures.

Prevent unnecessary personnel entering area of spillage. Avoid contact with eyes, skin, and clothing. When cleaning up large spills, appropriate protective clothing should be worn including eye protection and impervious gloves -see section 8 for details.

6.2 Environmental Precautions

Prevent from entering drains, ditches or rivers. If this happens inform relevant authorities. Prevent gross contamination of soil.

6.3 Methods and materials for containment and cleaning up.

Contain spillage using sand earth or absorbent booms. Small spillages can be absorbed using rags or absorbent granules. Remove all material to a suitable container for subsequent disposal. Label Salvage Container appropriately. Flush contaminated area with plenty of water.

6.4 References to other sections

For personal protection see section 8. For disposal methods see section 13.

7. Handling and storage

7.1 Precautions for safe handling

Avoid any method of handling that generates mists or aerosols. Do not eat, drink or smoke when handling this product. Wash hands thoroughly after use.

7.2 Conditions for safe storage including any incompatibilities

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 with mineral oils which are incompatible.

7.3 Specific end use

Users are referred to the Specification SAE J1707 "Service Maintenance of Brake Fluids". Racing brake fluids should not be used with alloys with a high magnesium content.

8. Exposure controls / Personal protection

8.1 Control Parameters

8.1.1 Occupational exposure limits

Mixture – No official figures available. Due to the low vapour pressure of the preparation, vapour is not generally a problem at ambient temperature.



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Mixture – No official figures available. Due to the low vapour pressure of the preparation, vapour is not generally a problem at ambient temperature.

Individual ingredients.

| | Country | 8 hours | 15 min |
|------------------|---------|---------------------|--------|
| Aliphatic Amines | Latvia | 1 mg/m ³ | |

8.1.2 Derived No Effect Levels (DNEL)

Not applicable

8.1.3 Predicted No Effect Concentrations (PNEC)

Not applicable

8.1.4 Recommended monitoring techniques

Personal air monitoring. An applicable standard is BS EN 14042.

8.2 Exposure Controls

8.2.1 General

Employ good industrial hygiene practice as part of a control banding approach.

8.2.2 Appropriate engineering controls

Not necessary under normal conditions. If fluid is being heated or atomised, local exhaust ventilation with filter / scrubber is recommended.

8.2.3 Individual protection measures / personal protective equipment.

Respiratory Protection –Not needed under normal conditions. Self-contained breathing apparatus or Organic vapour respirators (A-P2) may be used where product is being heated or atomised and engineering control measures are not practical.

Hand Protection -Wear chemically resistant impervious gloves (EN 374) to avoid prolonged or repeated contact. Butyl rubber, Natural rubber, Nitrile rubber and PVC are suitable materials. Because of great variety of types of gloves see manufacturer's figures for breakthrough times. In the case of prolonged contact a glove with a protection class of 6 (breakthrough time of >480 min) is recommended.

Eye Protection -Wear close-fitting goggles (EN 166) or face shield where there is a risk of splashing (acrylic or PVC preferred to polycarbonate which may be attacked by brake fluid). Eye baths should be provided at locations where accidental exposure may occur.

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.

8.2.4 Environmental Exposure Controls- No special measures required.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | | Test method |
|-----------------|--|-------------|
| Appearance | Clear liquid - colourless to amber (although some brake fluids may be dyed). | Visual. |
| Odour | Bland | N/A |
| Odour threshold | N/A –very low odour | |
| pH | 6.5 to 7.5 | SAE J 1703 |



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| | | |
|---|--|------------|
| Melting point | < -50 °C. | SAE J 1703 |
| Boiling point | > 300 °C. | SAE J 1703 |
| Flash point | > 100 °C. | IP 35 |
| Flammability limits in air. | Not established (non-volatile) | |
| Auto ignition temp. | > 300°C. | ASTM D 286 |
| Decomposition Temperature | >300°C | |
| Evaporation Rate | Negligible | |
| Density @ 20°C | 1.060 – 1.090 g/ml | DIN 51757 |
| Solubility | In water: miscible in any ratio In ethanol: miscible in any ratio | |
| Partition Coefficient (n-Octanol/Water) | < 2.0 (all main ingredients) | OECD 117 |
| Viscosity @ 20°C | Approx. 5-10 cSt | ASTM D 445 |
| Vapour pressure 20°C | < 2 milibars | Reid |
| Vapour Density | Not established as non-volatile | |
| Explosive properties | Not explosive. | |
| Oxidising Properties | Not oxidising | |

9.2 Other information -No other relevant data

10. Stability and reactivity

10.1 Reactivity

No hazardous reactions if stored and handled as indicated.

10.2 Chemical Stability

Product is stable under normal conditions.

10.3 Possibility of hazardous reactions.

Glycol Ethers can form peroxides on storage

Glycol ethers can react with light metals with the evolution of hydrogen.

10.4 Conditions to Avoid

Do not distil to dryness without testing for peroxide formation.

10.5 Incompatible Materials

Strong oxidising agents. For user safety, brake fluid should never be contaminated with any other substance.

10.6 Hazardous Decomposition Products-

None known.

11. Toxicological information

11.1 Information on toxicological effects

11.1.1 Acute Toxicity

Ingestion -Product is of low acute oral toxicity – LD50 (oral) Rat = > 5000 mg/kg. (Sparse experience indicates lethal dose in man could be less). However, if any significant amount is ingested, there is a risk of renal damage which in extreme cases could lead to kidney failure, coma or death. Other symptoms of overexposure include Central Nervous System effects, abdominal discomfort, metabolic acidosis, headache and nausea.



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Inhalation -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 above).

Aspiration –No aspiration hazard expected.

Dermal - Acute percutaneous toxicity is low LD50 (sk) Rabbit = > 3000 mg/kg. Massive contact with damaged skin could result in the absorption of harmful amounts.

11.1.2 Irritation

Eye Contact Causes serious eye irritation. (Test Method OECD 405).

Skin Contact Based on available data the classification criteria are not met -Test Method OECD 404.

Repeated contact may de-fat the skin and cause dermatitis.

11.1.3 Corrosivity

Based on available data the classification criteria are not met.

11.1.4 Sensitisation

Based on available data the classification criteria are not met.

11.1.5 Repeated dose toxicity

There are no reports of long term adverse effects in man. For one ingredient–Methyl diglycol

11.1.6 Carcinogenicity

Not known to be carcinogenic.

11.1.7 Mutagenicity

Not known to be mutagenic

11.1.8 Toxicity for reproduction

Major ingredients have not been shown to cause significant fertility or development problems at levels which are not themselves toxic to the animal concerned.

12. Ecological information

12.1 Toxicity

Product is of low acute ecotoxicity.

| | | |
|---------|-----|---|
| Fish | 96h | LC50 = > 100 mg/l (Oncorhynchus Mykiss) |
| Daphnia | 48h | EC50 = Not Determined but expected to be virtually non-toxic. |
| Algae | 72h | EC50 = Not Determined but expected to be virtually non-toxic. |

12.2 Persistence and Degradability

Product is inherently biodegradable and is expected to be readily biodegradable based on ingredients. OECD 302B (Zahn Wellans/EMPA) = 100% elimination at 21 days.

If admitted into adapted biological water treatment plants, no adverse effects on the degrading action of the live sludge are expected.



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12.3 Bioaccumulative Potential

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

12.4 Mobility in soil

Soluble in water and will partition to aqueous phase. Volatilisation from water to air not expected. Mobile in soil until degraded.

12.5 Results of PBT and vPvB assessment.

Product is considered to be neither “persistent, bio-accumulating and toxic” nor “very persistent and very bioaccumulating” according to Annex XIII of Regulation EC 1907/2006.

12.6 Other adverse effects. Not relevant

13. Disposal considerations

13.1 Waste treatment methods

Dispose of in accordance with local and national regulations. In the E.U. used brake fluids are classified as Hazardous Waste. EWC number: 16.01.13.

Controlled incineration or recycling is recommended. Do not dispose of to landfill or drains. It is recommended that contaminated packaging is either incinerated or cleaned and sent for recycling.

14. Transport information

| | |
|--------------------------------------|----------------|
| 14.1 UN No. / Class | None |
| 14.2 UN Proper shipping name | N/A |
| 14.3 Transport hazard classes | |
| Land Transport | |
| ADR | Not classified |
| RID | Not classified |
| Sea Transport | |
| IMO/IMDG | Not classified |
| Marine Pollutant | No |
| Air Transport | |
| IATA/IACO | Not classified |
| Inland waterways | |



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|--|-------------------------------|
| ADN | Not classified |
| 14.4 Packing Group | N/A |
| 14.5 Environmental Hazards | Not environmentally hazardous |
| 14.6 Special precautions for user | None relevant |
| 14.7 Transport in bulk (annex II of Marpol) | Not classified. |

15. Regulatory information

15.1 Safety, health and environmental regulations / legislation specific to the substance or mixture.

15.1.1 Chemical Inventories.

All ingredients are registered on the following inventories;

| | | | |
|-------------------------|---------------|-------------------|--------------------|
| E.U. (EINECS / EILINCS) | USA (TSCA) | Canada (DSL/NDSL) | Australia (AICS) |
| Japan (ENCS) | China (IECSC) | Korea (ECL) | Philippine (PICCS) |
| New Zealand (NZLoC) | Taiwan | | |

15.1.2 WGK Hazard class

Assessed as WGK 1 (self-assessment). Slight hazard to water.

15.1.3 Other

Usage should be in accord with all local and national regulations. In the U.K. This would include the Health and Safety at Work Act and the Control of Substances Hazardous to Health regulations (COSHH.)

15.2 Chemical safety assessment.

A chemical safety assessment has not been carried out for this product by the supplier.

16. Other information

16.1 Abbreviations and acronyms used in this data sheet.

DPD –Dangerous Preparations Directive.

CLP –Classification, labelling and packaging of substances and mixtures regulation, GHS –UN Globally Harmonised system of classification and labelling of chemicals STOT –RE Specific Target Organ Toxicity –Repeated Exposure.

R22 –Harmful if swallowed.

R36 –Irritating to eyes.

R41 –Risk of serious damage to eyes.

R63 –Possible risk of harm to the unborn child.

H302 –Harmful if swallowed

H318 – Causes serious eye damage

H319 – Causes serious eye irritation

H361d –Suspected of damaging fertility or the unborn child.

H373 –May cause damage to organs through prolonged or repeated exposure.

16.2 Classification according to regulation 1999/45/EC (DPD);

Not classified

16.3 Labelling according to 1999/45/EC (DPD):



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Hazard symbol



Irritant

Risk Phrases. R36 -Irritating to eyes

Safety phrases recommended; S2 Keep out of the reach of children. S26 (modified) In case of contact with eyes, rinse immediately with plenty of water for 10 min. If irritation persists seek medical advice. S46 – swallowed seek medical advice immediately and show this container or label. Safety phrases recommended; S2 Keep out of the reach of children. S26 (modified) In case of contact with eyes, rinse immediately with plenty of water for 10 min. If irritation persists seek medical advice. S46 –If swallowed seek medical advice immediately and show this container or label.

16.4 Revisions

Changes to this issue of the data sheet are indicated in the top right of each page

16.5 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