PERFORMANCE® FRICTION BRAKES

Performance Friction RH665 DOT 4 Racing Brake Fluid

IMPORTANT! HEALTH AND SAFETY INFORMATION

Product:	Performance Friction RH665 Dot 4 Racing Brake Fluid
Description:	Colourless to amber mobile liquid containing polyalkylene glycols and polyalklene glycol ethers.
Application	Competition Brake Fluid

FIRST AID PROCEDURES

Eyes	Eye contact will cause irritation. Flush immediately with copious quantities of water for at least 10 minutes. Obtain medical attention.
Skin	Wash well with soap and water. Repeated and prolonged contact may give rise to skin disorder. Should this develop, obtain medical advice.
Ingestion	If a substantial quantity is ingested, obtain medical attention immediately.
Aspiration	Obtain medical attention immediately.
Inhalation	In the unlikely event of inhalation, remove from Exposure and obtain medical attention

FIRE PROTECTION INFORMATION

Flash Point (test method)	145° C (Cleveland Open Cup) (NOT classified as highly flammable).
Suitable Extinuising Media	Any convenient means e.g. CO_2 dry powder, foam or water.
Hazardous Decompostion / Combustion Products	Irritant fumes. Breathing apparatus must be worn.

IMPORTANT! HEALTH AND SAFETY INFORMATION

SAFETY HANDLING ADVICE

STORAGE

1. Avoid any contamination of this product by oil, petrol, solvents or water.
2. Store undercover in original sealed container.
3. Store below 50°C if possible to prevent pressurisation of container.

HANDLING

1. Wear eye protection, impervious gloves and apron when transferring between containers.
2. Change any contaminated clothing immediately.
3. This product has a defatting action on the skin.
   Prolonged exposure may give rise to skin disorders.
   Apply a suitable barrier cream before use, and emollient cream after use.
4. Do not eat, drink or smoke whilst using this product.
5. Leakage from high pressure systems may result in mist formation.
   Ensure adequate ventilation.

WARNING STATEMENT

No significant hazard when used in the application for which is was designed for. Harmful if swallowed in quantity. Mild eye and skin irritant.

OCCUPATIONAL EXPOSURE LIMITS - EH 40 LISTED

8 Hour TWA	10 Minute TWA
Not Listed	Not Listed

CONVEYANCE INFORMATION

UN / SI Number	Not classified as dangerous for conveyance by any means of transport nationally or Internationally
Classification	
Packing Group	
CEFIC Tremcard No.	
Hazchem Name	
ITATA / IACO	

SUPPLY INFORMATION

Classification: Xi-Irritant

Risk Phrases: R36 R52 R53

Safety Phrases: S2 S26 S29 S46

PROTECTION OF THE ENVIRONMENT

Behaviour in water	Miscible with water
Spillage	Prevent entry into drains, sewers and watercourses. Soak up with inert absorbent material.
Waste Disposal	Dispose of in can via an authorised contractor as oil-hazardous waste. EWC No. 16.01.13

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15. REGULATORY INFORMATION

15.1 E.U. Classification Xi – Irritant

Risk Phrases
R36 - Irritating to eyes.
R52/53 – Harmful to aquatic organisms and may cause long term adverse affects in the aquatic environment

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 container or label.
S29 – Do not empty into drains.

15.2 Restrictions on use or Exposure
To be in accord with local and national regulations. In the UK this would include the HSWA and COSHH

16. OTHER INFORMATION

16.1 Risk (R) Phrases
R22 –Harmful if swallowed.
R35 –Causes Severe Burns.
R50/53 – Very Toxic to aquatic organisms and may cause long term adverse effects in the aquatic environment.

16.2 Revisions
First issue November 2010.

16.3 Legal Disclaimer
The information contained herein is based on the present knowledge and experience of the manufacturer. It in no way constitutes the users own assessment of work place risk as required by other Health and Safety legislation.
Performance Friction does not, by supplying this information, guarantee or warrant any specific properties or qualities of goods supplied. It is the responsibility of the purchaser to determine whether the goods ordered are fit for any purpose for which they may be required.
This information is provided subject to Performance Friction's Conditions of Sale.

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November 2010

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

1.1 Product Name
Performance Friction RH665 Racing Brake Fluid – 325 °C. DOT 4

1.2 Intended use
As a hydraulic fluid in automotive brake and clutch systems.

1.3 Supplier:
Performance Friction Brakes (UK) Ltd Carbon Metallic House, Wildmere Road, Banbury, OX16 3LU.
Tel: +44 1295 221 020, Fax: +44 1295 279 711 E-mail: uksales@performancefriction.com

2 HAZARDS IDENTIFICATION

2.1Classification
This product is classified as "Irritant" R36 "Irritating to eyes". R52/53: Harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment.

2.2 Physical Hazards
Product is not classified as flammable but will burn.

2.3 Health Hazards
Irritating to eyes. Mildly irritating to skin. When ingested it may be absorbed and cause renal damage at high dosage.

2.4 Environmental Hazards
May be harmful to aquatic organisms and could cause long term adverse effects in the aquatic environment.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 General
Blend of polyglycol ethers and glycol ether borate esters with added corrosion and oxidation inhibitors.

3.2 Hazardous Ingredients

Ingredient	Concentration %	Classification	Risk Phrases
Complex Amine Mixture	1 – 4	C/N/Xn	R35 R50/53 R22

See Section 16 for explanation of the risk phrases

4. FIRST AID MEASURES

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

4.2 Skin Contact
Remove contaminated clothing. Wash affected skin with soap and water. If irritation persists seek medical attention.

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

4.4 Ingestion
Obtain medical advice immediately. If patient is fully conscious, wash out mouth with water and give plenty of water to drink. Induce vomiting only under medical supervision.

4.5 Note to Physicians
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. FIRE FIGHTING MEASURES

5.1 Suitable Extinguishing Media
Alcohol resistant foam, dry powder or water (fog or fine spray).

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

5.3 Exposure Hazards
No special risk – combustion products may contain harmful or irritant fumes.

5.4 Special Protective Equipment
In extreme conditions self-contained breathing apparatus should be worn.

6. ACCIDENTAL RELEASE MEASURES

6.1 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.

6.2 Environmental Precaution

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

6.3 Methods for Cleaning Up

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 AND STORAGE

7.1 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.

7.2 Handling

No specific handling precautions are necessary.

7.3 Specific Use

Users are referred to the Specification SAE J1707 “Service Maintenance of Brake Fluids”. Racing brake fluid should not be used in high magnesium alloy components and should not be mixed with other brake fluids or its outstanding performance may be compromised.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Controls

No official TLV/OEL figures available for the entire preparation. However, 8 h TWA limits of 100 mg/m^3 vapour or 10 mg/m^3 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.

8.2 Respiratory Protection

No specific precautions at ambient temperature. If fluid is being heated or atomised, use suitable engineering control measures.

8.3 Hand Protection

Wear suitable impervious gloves to avoid prolonged or repeated contact. Polyethylene, butyl rubber and PVC are suitable materials.

8.4 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.

8.5 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.

8.6 Environmental Exposure Controls

No special measures required.

9. PHYSICAL AND CHEMICAL PROPERTIES

		Test method
9.1 Appearance	Clear liquid - colourless to amber (although some grades of brake fluid may be dyed.)	Visual
9.2 Odour	Bland	
9.3 pH	7.0 to 8.0	SAE J 1703
9.4 Boiling point	> 300 °C.	SAE J 1703
9.5 Melting point	< -50 °C.	SAE J 1703
9.6 Flash point	> 100 °C.	IP 35
9.7 Auto ignition temp.	> 300 °C.	ASTM D 286
9.8 Flammability limits in air	Not established	
9.9 Density @ 20°C	1.060 – 1.090 g/ml	DIN 51757
9.10 Solubility	In water: Approx 97% In ethanol: miscible in any ratio	
9.11 Partition Coefficient n-Octanol/Water	< 2.0	OECD 117
9.12 Viscosity @ 20°C	Approx. 5-10 cSt	ASTM D 445
9.13 Vapour pressure@ 20°C	< 2 milibars	Reid
9.14 Vapour Density	Not established	
9.15 Evaporation Rate	Negligible	

10. STABILITY AND REACTIVITY

10.1 Conditions to Avoid

Product is stable under normal conditions. Glycol Ethers can form peroxide on storage – do not distil to dryness.

10.2 Materials to Avoid

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

10.3 Hazardous Decomposition Products

None known.

11. TOXICOLOGICAL INFORMATION (comments may be based on analogy with similar products).

11.1 Eye Contact

Product is expected to have an irritating effect on the eye (OECD Test Method 405).

11.2 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 is not expected to cause sensitisation. Acute percutaneous toxicity is expected to be low LD50 (sk) Rat = > 2000 mg/kg.

11.3 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.

11.4 Inhalation

Unlikely to be hazardous by inhalation at ambient 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).

11.5 Chronic or Long Term Toxicity

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

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.

12. ECOLOGICAL INFORMATION (Comments may be based on analogy with similar products)

12.1 Ecotoxicity – Product is of low to medium ecotoxicity.

Fish	96h	LC50 = > 10 - 100 mg/l (Oncorhynchus Mykiss)
Daphnia	48h	EC50 = Not Determined.
Algae	72h	EC50 = Not Determined.

12.2 Mobility

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

12.3 Persistence/Degradability

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

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

12.4 Bio accumulative Potential

Not expected to be generally bio accumulative - overall Log POW < 2.0 although some minor ingredients > 3.0.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal Dangers

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

13.2 Disposal Methods

Controlled incineration or recycling is recommended.

13.3 Regulations

Dispose of in accordance with local and national regulations. In the E.U. used brake fluids are classified as Hazardous Waste (91/689/EEC). EWC number: 16.01.13.

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14. TRANSPORT INFORMATION

14.1 UN No /Class	None
14.2 ADR/RID	Not classified
14.3 IMO/IMDG	Not classified as hazardous
14.4 Marine Pollutant	No
14.5 IATA/IACO Class	Not classified