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Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name/designation:

RAVENOL Racing Brake Fluid R 325+

Article No.:

1350604

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

Use of the substance/mixture:

Bremsflüssigkeit
brake fluid

1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Ravensberger Schmierstoffvertrieb GmbH

Jöllenbecker Str. 2

33824 Werther

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Telephone: +49 5203 9719 0

Telefax: +49 5203 9719 48

E-mail: kontakt@ravenol.de

Website: www.ravenol.de

E-mail (competent person): kontakt@ravenol.de

1.4. Emergency telephone number

Abt. Produktsicherheit, 24h: +49 700 24 112 112 (Company ID: RAV) (outside USA/Canada) 011 49 700 24 112 112 (Company ID: RAV) (inside USA/Canada), +49 5203 9719 0 (Only available during office hours.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]:

Hazard classes and hazard categories	Hazard statements	Classification procedure
Serious eye damage/eye irritation (Eye Irrit. 2)	H319: Causes serious eye irritation.	

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms:



GHS07

Exclamation mark

Signal word: Warning

hazard statements for health hazards

H319 Causes serious eye irritation.

Supplemental Hazard information (EU): -

Precautionary statements

P102 Keep out of reach of children.



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Precautionary statements Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/Emergency telephone number.
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 + P313	If eye irritation persists: Get medical advice/attention.

Precautionary statements Disposal

P501	Dispose of contents/container according to official regulations for disposal.
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2.3. Other hazards

No data available

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Description:

Mixture of polyglycol ether esters with added corrosion and oxidation inhibitors.

Hazardous ingredients / Hazardous impurities / Stabilisers:

product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 0000000-02-8	Amine mixture Skin Corr. 1A, Acute Tox. 4, Aquatic Acute 1 H302-H314-H400	0 - 2 Wt %

Full text of H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information:

Take off immediately all contaminated clothing.

Following inhalation:

Provide fresh air. In case of respiratory tract irritation, consult a physician.

In case of skin contact:

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion:

Seek medical advice immediately. Rinse mouth. Let water be drunk in little sips (dilution effect).
 Get medical advice/attention if you feel unwell. Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs.

Self-protection of the first aider:

First aider: Pay attention to self-protection!

4.2. Most important symptoms and effects, both acute and delayed

No information available.

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

No information available. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Carbon dioxide (CO₂), Extinguishing powder, Water spray jet
 In case of major fire and large quantities: Co-ordinate fire-fighting measures to the fire surroundings.
 Use water spray jet to protect personnel and to cool endangered containers.

Unsuitable extinguishing media:

High power water jet



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5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Gases/vapours, toxic
Heating causes rise in pressure with risk of bursting.

Hazardous combustion products:

Nitrogen oxides (NOx) Carbon monoxide Carbon dioxide (CO₂)

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
Wear eye/face protection.
Use water spray jet to protect personnel and to cool endangered containers.

5.4. Additional information

Co-ordinate fire-fighting measures to the fire surroundings. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Personal precautions:

Remove persons to safety. Avoid contact with skin. Avoid contact with eyes. Wear suitable protective clothing, gloves and eye/face protection.

Protective equipment:

Wear protective gloves/protective clothing/eye protection/face protection.

6.1.2. For emergency responders

Personal protection equipment:

Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment:

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up:

To clean the floor and all objects contaminated by this material, use plenty of water.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

6.5. Additional information

Clear spills immediately.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Protective measures

Advices on safe handling:

No special handling advices are necessary. Do not breathe vapour/aerosol. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

Fire prevent measures:

No special fire protection measures are necessary.

Environmental precautions:

See section 8.

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff. Remove contaminated, saturated clothing. Avoid contact with eyes and skin.



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7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep/Store only in original container. Keep container tightly closed in a cool, well-ventilated place.

Requirements for storage rooms and vessels:

No special measures are necessary.

Hints on storage assembly:

not required

Storage class: 12 - non-combustible liquids that cannot be assigned to any of the above storage classes

Further information on storage conditions:

Keep container tightly closed.

7.3. Specific end use(s)

Recommendation:

Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

See section 7. No additional measures necessary.

8.2.2. Personal protection equipment

Eye/face protection:

Suitable eye protection: Filling and transfer Eye glasses with side protection (DIN EN 166)

Skin protection:

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Tested protective gloves must be worn (DIN EN 374)

Suitable material: PVC (Polyvinyl chloride), Butyl caoutchouc (butyl rubber), NBR (Nitrile rubber)

Breakthrough time (maximum wearing time) >480 min. Class(es) 6

In the case of wanting to use the gloves again, clean them before taking off and air them well.

Breakthrough times and swelling properties of the material must be taken into consideration.

Respiratory protection:

Usually no personal respirative protection necessary.

8.2.3. Environmental exposure controls

See section 7. No additional measures necessary.

8.3. Additional information

Aliphatic Amines / Latvia / 8 h = 1 mg/m³

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state: liquid

Colour: colourless

Odour: not determined

Safety relevant basis data

parameter		at °C	Method	Remark
pH	<i>not determined</i>			
Melting point/freezing point	< -50 °C			
Freezing point	<i>not determined</i>			
Initial boiling point and boiling range	<i>not determined</i>			
Decomposition temperature (°C):	<i>not determined</i>			
Flash point	<i>not determined</i>			
Evaporation rate	<i>not determined</i>			
Ignition temperature in °C	> 300 °C			
Upper/lower flammability or explosive limits	<i>not determined</i>			



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parameter		at °C	Method	Remark
Vapour pressure	<i>not determined</i>			
Vapour density	<i>not determined</i>			
Density	<i>not determined</i>			
Bulk density	<i>not determined</i>			
Water solubility (g/L)	<i>not determined</i>			
Partition coefficient: n-octanol/ water	<i>not determined</i>			
Dynamic viscosity	<i>not determined</i>			
Kinematic viscosity	<i>not determined</i>	40 °C		

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

May form explosive peroxides.

May cause strong formation of hydrogen by contact with amphoteric metals (e.g. alumina, lead, zinc) - danger of explosion.

10.4. Conditions to avoid

No special measures are necessary.

10.5. Incompatible materials

Oxidising agent, strong.

Do not mix with other chemicals.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:

LD50: (oral) Rat \geq 5000 mg/kg Acute oral toxicity: Low

IF SWALLOWED: Liver and kidney damage

Acute dermal toxicity:

There are no data available on the preparation/mixture itself.

Acute inhalation toxicity:

There are no data available on the preparation/mixture itself.

Skin corrosion/irritation:

Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation).

Eye damage/irritation:

Causes serious eye irritation.

Respiratory or skin sensitisation:

No information available.

Germ cell mutagenicity:

No indications of human germ cell mutagenicity exist.

Carcinogenicity:

No indication of human carcinogenicity.

Reproductive toxicity:

No indications of human reproductive toxicity exist.



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SECTION 12: Ecological information

12.1. Toxicity

Assessment/classification:

This mixture does not contain further substances fulfilling the criteria of hazard class "acute toxicity" according to CLP regulation.

Additional ecotoxicological information:

Do not allow uncontrolled discharge of product into the environment.

12.2. Persistence and degradability

Additional information:

Readily biodegradable.

12.3. Bioaccumulative potential

CAS No.	Substance name	Log K _{OC}	Bioconcentration factor (BCF)
000000 0-02-8	Amine mixture	2	

Accumulation / Evaluation:

No indication of bioaccumulation potential.

12.4. Mobility in soil

Soluble in: Water. Biodegradable.

12.5. Results of PBT and vPvB assessment

CAS No.	Substance name	Results of PBT and vPvB assessment
000000 0-02-8	Amine mixture	—

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of waste according to applicable legislation.

13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV

Waste code product:

Remark:

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Waste treatment options

Appropriate disposal / Product:

Dispose of waste according to applicable legislation.

Appropriate disposal / Package:

Completely emptied packages can be recycled.

13.2. Additional information

No data available

SECTION 14: Transport information

No dangerous good in sense of these transport regulations.

14.1. UN-No.

not relevant

14.2. UN proper shipping name

not relevant

14.3. Transport hazard class(es)

not relevant



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14.4. Packing group

not relevant

14.5. Environmental hazards

not relevant

14.6. Special precautions for user

not relevant

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No

Additional information:

No dangerous good in sense of these transport regulations.

SECTION 15: Regulatory information

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

15.1.1. EU legislation

No data available

15.1.2. National regulations

[DE] National regulations

Water hazard class (WGK)

WGK:

keine Angabe

Description:

slightly hazardous to water (WGK 1)

Technische Regeln für Gefahrstoffe

Minimum protective measures according to TRGS 500

15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

15.3. Additional information

Observe in addition any national regulations!

SECTION 16: Other information

16.1. Indication of changes

sections 2, 5, 6, 10, 11

16.2. Abbreviations and acronyms

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

16.3. Key literature references and sources for data

67/548/EEC - Dangerous Substances Directive
1999/45/EEC - Dangerous Preparations Directive
EC 1907/2006 - REACH Regulation
1272/2008 EC - Regulation on classification, labeling and packaging of substances and mixtures, and amending Directives 67/548/EEC and 1999/45/EC and Regulation (EC) No 1907/2006
Regulation (EC) No 1907/2006 (REACH), Annex II
European Chemicals Agency (ECHA), C & L classification and labeling inventory
European Chemicals Agency (ECHA), ECHA CHEM Registered substances
OECD The Global Portal to Information on Chemical Substances (ChemPortal)
Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA): GESTIS substance database and International limit values for chemical substances
Federal Environment Agency, Section IV 2.4: Documentation and Information Centre substances hazardous to water Rigoletto (catalog substances hazardous to water)



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16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Classification according to Regulation (EC) No 1272/2008 [CLP]:

Hazard classes and hazard categories	Hazard statements	Classification procedure
Serious eye damage/eye irritation (Eye Irrit. 2)	H319: Causes serious eye irritation.	

16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H400	Very toxic to aquatic life.

16.6. Training advice

No data available

16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.



RAVENOL Racing Brake Fluid R325+



ART.-NR. 1350604

500 ml | 1350604-500

SPEZIFIKATIONEN FMVSS 116 DOT 4 IFMVSS 116 DOT 5.1 ISAE J1703
ISAE J1034

RAVENOL Racing Brake Fluid R325+ ist eine speziell entwickelte thermisch sehr hoch belastbare Hochleistungsbremsflüssigkeit auf allerhöchstem DOT 4 Niveau. Die Formulierung ist mit einem Glykolether / -estersystem auf einer Technologie der Spitzenklasse aufgebaut. Der Einsatz einer bewährten Additivkombination in Verbindung mit einem speziell auf den Hochsiedebereich ausgerichteten Basissystem garantiert Sicherheit auch bei extremsten Belastungen.

RAVENOL Racing Brake Fluid R325+ ist aufgrund seines sehr hohen Siede- und Nassiedepunktes eine ideale Bremsflüssigkeit für den Rennsport (Auto und Motorräder). Die Bremsanlage spricht auch unter extremen Bedingungen besser an. Bitte beachten sie hierzu auch immer die Vorschriften des Kfz-Herstellers.

Anwendungshinweis

Um optimale Ergebnisse zu erzielen, sollte das Bremssystem vor jedem Rennen mit **RAVENOL Racing Brake Fluid R325+** neu befüllt werden. Vor allem, wenn die Bremsen übermäßig heiß sind oder unter tropischen Bedingungen gefahren wird.

Nicht mit anderen Bremsflüssigkeiten mischen!

Nicht anwendbar für Fahrzeuge, die eine mineralische Bremsflüssigkeit (LHM) erfordern.

Herstellervorschriften beachten.

Nicht empfohlen, wenn Komponenten aus Magnesium oder Legierungen mit hohem Magnesiumgehalt verwendet werden.

Eigenschaften

RAVENOL Racing Brake Fluid R 325+ bietet:

- Optimale ABS-Eigenschaften
- Chemische Stabilität
- Höchste Schmierkraft
- Neutrales Verhalten gegenüber Bremsenteilen
- Dünflüssigkeit auch bei niedrigen Temperaturen
- Mischbarkeit mit allen Bremsflüssigkeiten gleicher Spezifikation



Eigenschaften	Einheit	Daten	Prüfung nach
Farbe		gelb	visuell
Dichte bei 20°C	kg/m ³	1078	DIN EN 12185
Siedepunkt	°C	Min. 328 °C	ISO 4925
Nasssiedepunkt	°C	Min. 204 °C	ISO 4925
Kin. Viskosität bei -40°C	mm ² /s	Max. 1800 cSt	DIN EN 3104
Kin. Viskosität bei 100°C	mm ² /s	2,59	DIN 51 562
pH-Wert		7,15	FMVSS 116
Hoch Temperatur Stabilität	°C	-1	FMVSS 116
Chemische Stabilität	°C	1	FMVSS 116
Verdampfungsverlust	%w/w	50	FMVSS 116
Fließfähigkeit und Erscheinung bei -40°C		i.O., 4s	
Fließfähigkeit und Erscheinung bei -50°C		i.O., 7s	FMVSS 116
Wasseraufnahme bei -40°C		klar, 5s	FMVSS 116
Wasseraufnahme bei +60°C		klar, keine Ablagerungen	FMVSS 116
Mischbarkeit bei -40°C		klar, keine Phasentrennung	FMVSS 116
Mischbarkeit bei +60°C		klar, keine Ablagerungen	FMVSS 116
Wassergehalt	%	<0.20	Karl Fischer
Korrosionsbeständigkeit			
Verzinktes Eisen	mg/cm ²	0,03	FMVSS 116
–	Aussehen	gut	
Stahl	mg/cm ²	0,01	FMVSS 116
–	Aussehen	gut	
Aluminium	mg/cm ²	0,02	FMVSS 116
–	Aussehen	gut	
Gusseisen	mg/cm ²	-0,1	FMVSS 116
–	Aussehen	gut	



Eigenschaften	Einheit	Daten	Prüfung nach
Messing	mg/cm ²	-0,4	FMVSS 116
–	Aussehen	gut	
Kupfer	mg/cm ²	-0,5	FMVSS 116
–	Aussehen	gut	
Aussehen der Flüssigkeit		i.O.	FMVSS 116
Ablagerungen	%	<0,05	FMVSS 116
pH-Wert		7,51	FMVSS 116
Veränderung des Durchmessers von Gummi		0,03	FMVSS 116
Veränderung der Härte	IRHD	-4	FMVSS 116
Erscheinungsbild		i.O.	
Verzinktes Eisen	mg/cm ²	0,03	FMVSS 116
–	Aussehen	gut	
Aluminium	mg/cm ²	-0,01	FMVSS 116
–	Aussehen	gut	
Beständigkeit gegen Gummi			
SBR bei 70°C	Ø Veränderung, mm	0,76	FMVSS 116
—	Härte, IRHD	-4	
—	Volumen, %	8,34	
–	Aussehen	gut	
SBR bei 120°C	Ø Veränderung, mm	1,05	FMVSS 116
—	Härte, IRHD	-7	FMVSS 116
—	Volumen, %	10,1	FMVSS 116
–	Aussehen	gut	
EPDM bei 70°C (Anforderung aus SAE J1703)	Härte, IRHD	-1	FMVSS 116
—	Volumen, %	0,93	FMVSS 116
–	Aussehen	gut	
EPDM bei 120°C	Härte, IRHD	-2,5	FMVSS 116



Eigenschaften	Einheit	Daten	Prüfung nach
—	Volumen, %	1,8	FMVSS 116
—	Aussehen	gut	

Alle Angaben entsprechen nach bestem Wissen dem derzeitigen Stand der Erkenntnisse und unserer Entwicklung. Änderungen bleiben vorbehalten. Alle Bezugnahme auf DIN-Normen dienen nur der Warenbeschreibung und stellen keine Garantie dar. Bei vorliegenden Problemfällen technische Beratung anfordern.

Stand: 13. Juli 2020