



RAVENOL RFS SAE 15W-50



VISKOSITÄT 15W-50
HERSTELLUNGSART VOLLSYNTHETISCH

RAVENOL RFS SAE 15W-50 ist ein modernes PAO (Polyalphaolefin) basiertes, vollsynthetisches Leichtlauf-Mehrbereichs-Motorenöl mit spezieller USVO®-Technologie.

RAVENOL RFS SAE 15W-50 ist hervorragend geeignet für moderne Benzinmotoren bei Autorennen auch unter schwersten Belastungen.

Die USVO®-Technologie bietet höhere Leistung, verbesserten Motorschutz, verminderten Kraftstoffverbrauch und optimierte Motorsauberkeit für Ihr Fahrzeug. Durch seinen hohen Viskositätsindex, seine gute Scherstabilität und eine spezielle Additivierung unter Verwendung von Wolfram ist **RAVENOL RFS SAE 15W-50** auch für eine extrem sportliche Fahrweise geeignet.

RAVENOL RFS SAE 15W-50 nutzt die positiven Eigenschaften von Wolfram, dass die Oberflächenstruktur im Motor stark glättet, damit Reibung und Verschleiß vermindert und die mechanische Effizienz deutlich verbessert.

RAVENOL RFS SAE 15W-50 erreicht durch seine einzigartige Formulierung eine sichere Schmierschicht auch bei sehr hohen Betriebstemperaturen und Schutz vor Korrosion (Oxidierung) und Schaumbildung.

ART.-NR. 1142105

- 1 L | 1142105-001
- 4 L | 1142105-004
- 5 L | 1142105-005
- 10 L | 1142105-010
- 20 L | 1142105-020
- 20 L | 1142105-B20
- 60 L | 1142105-060
- 60 L | 1142105-D60
- 208 L | 1142105-208
- 208 L | 1142105-D28
- 1000 L | 1142105-700

Anwendungshinweis

RAVENOL RFS SAE 15W-50 wird eingesetzt als Spezialöl für Autorennen wie auch unter schwersten Bedingungen.

Eigenschaften

RAVENOL RFS SAE 15W-50 bietet:

- Hochmodernes, vollsynthetisches Motorenöl mit spezieller Wolfram-Additivierung für den Renneinsatz
- Kraftstoffersparnis im Teil- und Volllastbetrieb
- Eine sehr geringe Verdampfungsneigung
- Sehr stabiles und ausgezeichnetes Viskositätsverhalten
- Sehr gute Kaltstarteigenschaften
- Eine sichere Schmierschicht bei sehr hohen Betriebstemperaturen
- Sehr gute detergierende und dispergierende Eigenschaften
- Einen weitgehenden Schutz vor Verschleiß, Korrosion und Schaumbildung



Eigenschaften	Einheit	Daten	Prüfung nach
Dichte bei 20°C	kg/m ³	856,0	DIN 51757
Aussehen/Farbe		gelbbraun	visuell
Viskosität bei 100°C	mm ² /s	18,0	DIN 51 562
Viskosität bei 40°C	mm ² /s	120,3	DIN 51 562
Viskositätsindex VI		168	DIN ISO 2909
HTHS bei 150°C	mP? [*] s	5,3	ASTM D5481
CCS Viskosität bei -20°C	mPa*s	4919	ASTM D5293
Low Temp. Pumping viscosity (MRV)	mPa*s	25.900	ASTM D4684
Pourpoint	°C	- 54	DIN ISO 3016
Noack Verdampfungstest	% M/M	5,5	ASTM D5800/b
Flammpunkt	°C	248	DIN ISO 2592
TBN	mg KOH/g	10,2	ASTM D2896
Sulfatasche	%wt.	1,3	DIN 51 575

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: 03. Dezember 2019



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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 RFS SAE 15W-50

Article No.:

1142105

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

Use of the substance/mixture:

Lubricant

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
Respiratory or skin sensitisation (Skin Sens. 1B)	H317: May cause an allergic skin reaction.	
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 components for labelling:

zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)

hazard statements for health hazards	
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.



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Supplemental Hazard information (EU)

EUH208	Contains Amin, Bis(11-14 verzweigte und lineare Alkyl) Wolframate, Alkylphenol. May produce an allergic reaction.
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Precautionary statements Prevention

P264.1	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements Response

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.

Precautionary statements Disposal

P501.2	Dispose of contents/container to an appropriate recycling or disposal facility.
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2.3. Other hazards

No data available

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Hazardous ingredients / Hazardous impurities / Stabilisers:

product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CL P]	Concentration
CAS No.: 93819-94-4 EC No.: 298-577-9	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate) Eye Dam. 1, Skin Irrit. 2, Aquatic Chronic 2 Danger H315-H318-H411	0 - < 2 Wt %
EC No.: 931-468-2 REACH No.: 01-2119498288-19	alkylphenol Skin Sens. 1B, Aquatic Chronic 4 H317-H413	0 - < 2 Wt %
CAS No.: 36878-20-3 EC No.: 253-249-4	bis(nonylphenyl)amine Aquatic Chronic 4 H413	0 - < 2 Wt %
CAS No.: 1159919-46-6	amine, bis(11-14 branched and linear alkyl) tungstates Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 1 H317-H400-H410	0 - < 0.1 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:

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious place in recovery position and seek medical advice. Do not leave affected person unattended.

Following inhalation:

Provide fresh air. Consult a doctor immediately.

In case of skin contact:

After contact with skin, wash immediately with plenty of water and soap. Consult a doctor immediately.

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. Causes serious eye irritation.

After ingestion:

Rinse mouth thoroughly with water. Do NOT induce vomiting. Consult a doctor immediately.

Self-protection of the first aider:

Use personal protection equipment. No direct artificial respiration to be given by first aider.

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

Causes serious eye irritation. May cause an allergic skin reaction.



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

Treat symptomatically. Observe risk of aspiration if vomiting occurs.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Co-ordinate fire-fighting measures to the fire surroundings.

Carbon dioxide (CO₂)

Extinguishing powder

alcohol resistant foam

Use water spray jet to protect personnel and to cool endangered containers.

Unsuitable extinguishing media:

Full water jet

5.2. Special hazards arising from the substance or mixture

During heating or in case of fire, toxic gases is possible.

The formation of combustible vapours is possible at temperatures above: Flash point

When hot, product develops flammable vapours.

Hazardous combustion products:

Carbon monoxide, Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Gases/vapours, toxic During heating or in case of fire, toxic gases is possible.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus. Protective clothing.

5.4. Additional information

Do not inhale explosion and combustion gases. Move undamaged containers from immediate hazard area if it can be done safely. 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:

Use personal protection equipment. Special danger of slipping by leaking/spilling product. Remove persons to safety.

Protective equipment:

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

6.1.2. For emergency responders

Personal protection equipment:

Use personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

For containment:

Suitable material for taking up: Sand, Kieselguhr, Universal binder, Chemical binding agents, containing acids

For cleaning up:

Remove from the water surface (e.g. skimming, sucking). Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information:

Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8



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6.5. Additional information

Clear spills immediately. Use appropriate container to avoid environmental contamination.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Protective measures

Advices on safe handling:

Wear personal protection equipment (refer to section 8).

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Do not put any product-impregnated cleaning rags into your trouser pockets. Clear spills immediately. Use appropriate container to avoid environmental contamination.

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.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep container tightly closed in a cool, well-ventilated place.

Requirements for storage rooms and vessels:

Suitable container/equipment material: Floors should be impervious, resistant to liquids and easy to clean. Shafts and sewers must be protected from entry of the product.

Keep/Store only in original container.

Hints on storage assembly:

not required

Storage class: 10 - Combustible liquids that cannot be assigned to any of the above storage classes

Further information on storage conditions:

Store in a cool dry place. Keep away from heat.

7.3. Specific end use(s)

Recommendation:

Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

* 8.1. Control parameters

8.1.1. Occupational exposure limit values

No data available

8.1.2. Biological limit values

No data available

8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type ② Exposure route
zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate) CAS No.: 93819-94-4	8.31 mg/m ³	① DNEL worker ② DNEL long-term inhalative (systemic)
alkylphenol	1.17 mg/m ³	① DNEL worker ② DNEL long-term inhalative (systemic)

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:

During transfer: Eye glasses with side protection



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Skin protection:

Hand protection
 Suitable material: NBR (Nitrile rubber), PVC (Polyvinyl chloride)
 Thickness of the glove material: $\geq 0,4$ mm
 Breakthrough time (maximum wearing time) >480 min
 Breakthrough times and swelling properties of the material must be taken into consideration.
 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.

Suitable protective clothing: Protective clothing:

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

No data available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state: Liquid

Colour: tawny

Odour: characteristic

Safety relevant basis data

parameter		at °C	Method	Remark
pH	<i>not applicable</i>			
Melting point	<i>not applicable</i>			
Freezing point	<i>not determined</i>			
Initial boiling point and boiling range	<i>not applicable</i>			
Decomposition temperature (°C):	<i>not determined</i>			
Flash point	248 °C			
Evaporation rate	<i>not determined</i>			
Ignition temperature in °C	<i>not determined</i>			
Upper/lower flammability or explosive limits	<i>not applicable</i>			
Vapour pressure	<i>not determined</i>			
Vapour density	<i>not determined</i>			
Relative density	856 kg/m ³	20 °C		
Bulk density	<i>not determined</i>			
Water solubility (g/L)	The study does not need to be conducted because the substance is known to be insoluble in water.			
Partition coefficient: n-octanol/water	<i>not determined</i>			
Dynamic viscosity	<i>not determined</i>			
Kinematic viscosity	120.3 mm ² /s	40 °C		

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No known hazardous reactions. Risk of explosion if heated under confinement.

10.2. Chemical stability

The mixture is chemically stable under recommended conditions of storage, use and temperature.



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10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4. Conditions to avoid

To avoid thermal decomposition do not overheat.

10.5. Incompatible materials

Materials to avoid: Acid, Oxidising agent, Reducing agent

10.6. Hazardous decomposition products

Hazardous combustion products: Carbon dioxide Carbon monoxide Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

CAS No.	Substance name	Toxicological information
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	LD₅₀ oral: 2,600 g/m ³ (Rat) LD₅₀ dermal: 3,160 g/m ³ (Rabbit)

Acute oral toxicity:

The product has not been tested.

Acute dermal toxicity:

No information available for acute dermal and inhalative toxicity.

Acute inhalation toxicity:

No information available for acute dermal and inhalative toxicity.

Skin corrosion/irritation:

May cause an allergic skin reaction.

Frequently or prolonged contact with skin may cause dermal irritation.

Serious eye damage/irritation:

Causes serious eye irritation.

Respiratory or skin sensitisation:

May cause sensitization by skin contact.

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.

Aspiration hazard:

Observe risk of aspiration if vomiting occurs.

SECTION 12: Ecological information

* 12.1. Toxicity

CAS No.	Substance name	Toxicological information
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	LC₅₀: 4.5 mg/l 4 d EC₅₀: 5.4 mg/l 2 d EC₅₀: 2.1 mg/l 3 d

Assessment/classification:

The product has not been tested.

Additional ecotoxicological information:

Do not allow uncontrolled discharge of product into the environment.

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

* 12.2. Persistence and degradability

CAS No.	Substance name	Biodegradation	Remark
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	No	

Additional information:

The product has not been tested.



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* **12.3. Bioaccumulative potential**

CAS No.	Substance name	Log K _{OC}	Bioconcentration factor (BCF)
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	0.9	

Accumulation / Evaluation:

The product has not been tested.

12.4. Mobility in soil

The product has not been tested.

* **12.5. Results of PBT and vPvB assessment**

CAS No.	Substance name	Results of PBT and vPvB assessment
93819-94-4	zinc bis[O-(6-methylheptyl)] bis[O-(sec-butyl)] bis(dithiophosphate)	The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.
	alkylphenol	The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII.

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

12.6. Other adverse effects

No information 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 packaging:

Remark:

Dispose of waste according to applicable legislation.

Waste treatment options

Appropriate disposal / Product:

Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

Appropriate disposal / Package:

Non-contaminated packages may be recycled.

13.2. Additional information

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

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
14.4. Packing group	not relevant
14.5. Environmental hazards	not relevant
14.6. Special precautions for user	not relevant



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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
not applicable

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

Restrictions of occupation

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (WGK)

WGK:

2 - deutlich wassergefährdend

Source:

Self-classification (mixture; calculation rule).

Technische Regeln für Gefahrstoffe

TRGS 510

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

Berufsgenossenschaftliche Vorschriften (BGV)

Berufsgenossenschaftliche Informationen (BGI) 868

Berufsgenossenschaftliche Regeln (BGR) 189, 190, 192, 195

Other regulations, restrictions and prohibition regulations

Altöl-Verordnung (AltöIV)

15.2. Chemical Safety Assessment

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

15.3. Additional information

No data available

SECTION 16: Other information

* 16.1. Indication of changes

2.2.	Label elements
3.2.	Mixtures
8.1.	Control parameters
12.1.	Toxicity
12.2.	Persistence and degradability
12.3.	Bioaccumulative potential
12.5.	Results of PBT and vPvB assessment
16.1.	Indication of changes

16.2. Abbreviations and acronyms

See overview table at www.euphrac.eu

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



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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)

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
Respiratory or skin sensitisation (<i>Skin Sens. 1B</i>)	H317: May cause an allergic skin reaction.	
Serious eye damage/eye irritation (<i>Eye Irrit. 2</i>)	H319: Causes serious eye irritation.	

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

Hazard statements	
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects 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.

* Data changed compared with the previous version