



## RAVENOL Outboardoel 2T Fullsynth.



ART.-NR. 1151200

1 L I 1151200-001  
4 L I 1151200-004  
5 L I 1151200-005  
10 L I 1151200-010  
20 L I 1151200-020  
20 L I 1151200-B20  
1000 L I 1151200-700

**SPEZIFIKATIONEN** API TD  
**HERSTELLUNGSART** VOLLSYNTHETISCH  
**FREIGABE** NMMA TC-W3® I RL-90001G

**RAVENOL Outboardoel 2T Fullsynth.** ist ein vollsynthetisches hochwertiges Outboard 2-Takt-Motorenöl auf Basis mit speziellen Estern und Polyisobutylen (PIB). Einwandfreie Schmierung und Verschleißschutz durch spezielle Low-Ash Additive.

**RAVENOL Outboardoel 2T Fullsynth.** wurde speziell für den Einsatz in 2-Takt-Außenbordmotoren mit und ohne Direkteinspritzsysteme (Direct-Fuel-Injection DFI) in frischwassergekühlten Außenbordmotoren mit Getrennt- (Autolube-Systeme) oder Gemischschmierung entwickelt.

**RAVENOL Outboardoel 2T Fullsynth.** erfüllt die Anforderungen der National Marine Manufacturers Association NMMA TC-W3 (Yamaha CE 50S, Mercury).

## Anwendungshinweis

**RAVENOL Outboardoel 2T Fullsynth.** kann unter Anwendung des vom Motorenhersteller vorgeschriebenen Mischungsverhältnisses in alle Außenbordmotoren eingesetzt werden, für die ein Öl nach „TC-W3“ empfohlen wird. Es kann auch eingesetzt werden für Motoren im Seewasserbetrieb.

**RAVENOL Outboardoel 2T Fullsynth.** wird empfohlen für den Einsatz in 2-Takt-Außenbordmotoren mit und ohne Direkteinspritzsysteme (Direct-Fuel-Injection DFI), z.B. OptiMax (Mercury), E-TEC (BRP: Evinrude und Johnson), HPDI (Yamaha), TLDI (Tohatsu, Nissan Marine), DFI (Selva).

Empfohlene Mischung: 1:100 mit Normalbenzin.

Die Vorschriften der Motoren-Hersteller müssen eingehalten werden.

## Eigenschaften

**RAVENOL Outboardoel 2T Fullsynth.** bietet:

- Einen ausgezeichneten Korrosionsschutz in allen ölbenetzten Motorteilen
- Sofortige, homogene Mischung mit dem verwendeten Kraftstoff (auch bleifrei)
- Einen haftfähigen, druck- und temperaturbeständigen Ölfilm
- Ein hervorragendes Antiverschleißverhalten
- Eine rückstandsfreie Verbrennung ohne Ablagerungen
- Geringe Verkokungsneigung



- Hohen Verschleißschutz.
- Sehr niedrigen Pourpoint, auch bei sehr kalten Temperaturen einsetzbar

| Eigenschaften        | Einheit            | Daten | Prüfung nach |
|----------------------|--------------------|-------|--------------|
| Dichte bei 20°C      | kg/m <sup>3</sup>  | 864,0 | EN ISO 12185 |
| Farbe                |                    | blau  | visuell      |
| Viskosität bei 100°C | mm <sup>2</sup> /s | 10,7  | DIN 51 562   |
| Viskosität bei 40°C  | mm <sup>2</sup> /s | 70,8  | DIN 51 562   |
| Viskositätsindex VI  |                    | 143   | DIN ISO 2909 |
| Pourpoint            | °C                 | -48   | DIN ISO 3016 |
| Flammpunkt (COC)     | °C                 | 143   | DIN ISO 2592 |

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.

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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 Outboardoel 2T Fullsynth.

Article No.:

1151200

**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

D

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]:

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

**2.2. Label elements**

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

According to EC directives or the corresponding national regulations the product does not have to be labelled.

Hazard statements: -

**Supplemental Hazard information (EU)**

EUH208

Contains Calcium, aqua 1,2-dihydroxy-9,10-anthracenedione oxo aluminum complexes. May produce an allergic reaction.

Precautionary statements: -

**2.3. Other hazards**

No data available



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## SECTION 3: Composition / information on ingredients

### 3.2. Mixtures

#### Hazardous ingredients / Hazardous impurities / Stabilisers:

| product identifiers   | Substance name<br>Classification according to Regulation (EC) No 1272/2008 [CL P]  | Concentration   |
|---|--|-----------------|
| CAS No.: 64742-47-8<br>EC No.: 920-107-4<br>REACH No.:<br>01-2119453414-43-0000 | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes,<br><2% aromatics<br>Asp. Tox. 1<br><b>Danger</b> H304                             | 10 - 20<br>Wt % |
| CAS No.: 94094-89-0<br>EC No.: 302-191-9  | Calcium, aqua 1,2-dihydroxy-9,10-anthracenedione oxo alum<br>inum complexes<br>Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1<br>H315-H317-H319 | 0 - < 1<br>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.

#### 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

Contains Calcium, aqua 1,2-dihydroxy-9,10-anthracenedione oxo aluminum complexes. May produce an allergic reaction.

### 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 (CO<sub>2</sub>)

Extinguishing powder

alcohol resistant foam

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

#### Unsuitable extinguishing media:

High power 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

#### Hazardous combustion products:

Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>),

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



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### 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

### 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:

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.



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**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**

| Limit value type (country of origin) | Substance name  | ① long-term occupational exposure limit value<br>② short-term occupational exposure limit value<br>③ Instantaneous value<br>④ Monitoring and observation processes<br>⑤ Remark |
|--------------------------------------|---|--|
| DFG (DE)                             | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics<br>CAS No.: 64742-47-8 | ① 50 ppm (350 mg/m <sup>3</sup> )<br>② 100 ppm (700 mg/m <sup>3</sup> )<br>⑤ Dampf   |
| DFG (DE)                             | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics<br>CAS No.: 64742-47-8 | ① 5 mg/m <sup>3</sup><br>② 20 mg/m <sup>3</sup><br>⑤ Aerosol (alveolengängige Fraktion)  |

**8.1.2. Biological limit values**

No data available

**8.1.3. DNEL-/PNEC-values**

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:**

During transfer: Eye glasses with side protection

**Skin protection:**

Hand protection

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

Thickness of the glove material: >= 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**

Mineral oil mist limits:

OSHA PEL - value 5 mg / m<sup>3</sup>, ACGIH STEL - value of 10 mg / m<sup>3</sup>



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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

**Physical state:** liquid

**Colour:** blue

**Odour:** characteristic

#### Safety relevant basis data

| parameter                                    |   | at °C | Method | Remark |
|--|---|-------|--------|--------|
| pH   | <i>not determined</i>   |       |        |        |
| Melting point                                | <i>not determined</i>   |       |        |        |
| 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                                  | 143 °C  |       |        |        |
| Evaporation rate                             | <i>not determined</i>   |       |        |        |
| Ignition temperature in °C                   | <i>not determined</i>   |       |        |        |
| Upper/lower flammability or explosive limits | <i>not determined</i>   |       |        |        |
| Vapour pressure                              | <i>not determined</i>   |       |        |        |
| Vapour density                               | <i>not determined</i>   |       |        |        |
| Relative density                             | 864 kg/m <sup>3</sup>   | 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                          | 70.8 mm <sup>2</sup> /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.

### 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, Reducing agent

### 10.6. Hazardous decomposition products

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



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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| CAS No.    | Substance name   | Toxicological information  |
|------------|--|--|
| 64742-47-8 | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics | <b>LD<sub>50</sub> oral:</b> >5,000 mg/kg (Rat)<br><b>LD<sub>50</sub> dermal:</b> >5,000 mg/kg (Rabbit)<br><b>LC<sub>50</sub> inhalative:</b> 4,951 mg/l 4 h |

**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:**

Generally the product does not irritate the skin. Frequently or prolonged contact with skin may cause dermal irritation.

**Eye damage/irritation:**

No irritant effect.

**Respiratory or skin sensitisation:**

Contains Calcium, aqua 1,2-dihydroxy-9,10-anthracenedione oxo aluminum complexes. May produce an allergic reaction.

**Germ cell mutagenicity:**

No indications of human germ cell mutagenicity exist.

**Carcinogenicity:**

The base oil / mineral oil used has a value of less than 3% DMSO, so it is not classified as a carcinogen.

**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  |
|------------|--|--|
| 64742-47-8 | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics | <b>LC<sub>50</sub>:</b> >100 mg/l 4 d (Oncorhynchus mykiss (Rainbow trout))<br><b>ErC<sub>50</sub>:</b> >100 mg/l 3 d (Skeletonema costatum)<br><b>EC<sub>50</sub>:</b> >100 mg/l 2 d (Daphnia magna (Big water flea)) |

**Aquatic toxicity:**

The product has not been tested.

**Assessment/classification:**

The product has not been tested.

### 12.2. Persistence and degradability

**Biodegradation:**

Not readily biodegradable (according to OECD criteria)

### 12.3. Bioaccumulative potential

| CAS No.    | Substance name   | Log K <sub>OC</sub> | Bioconcentration factor (BCF) |
|------------|--|---------------------|-------------------------------|
| 64742-47-8 | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics | 7                   |                               |

**Accumulation / Evaluation:**

The product has not been tested.

### 12.4. Mobility in soil

No data available





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### 12.5. Results of PBT and vPvB assessment

| CAS No.    | Substance name  | Results of PBT and vPvB assessment   |
|------------|---|--|
| 64742-47-8 | Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics  | The substance in the mixture does not meet the PBT/vPvB criteria according to REACH, annex XIII. |
| 94094-89-0 | Calcium, aqua 1,2-dihydroxy-9,10-anthracenedione oxo aluminum complexes | 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 data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

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

### 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

##### Other regulations (EU):

Safety data sheet available for professional user on request.



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### 15.1.2. National regulations

#### [DE] National regulations

#### Water hazard class (WGK)

##### WGK:

2 - deutlich wassergefährdend

##### Description:

hazardous to water (WGK 2)

##### Source:

Classification according to VwVwS, Annex 4.

#### 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

sections 2, 3, 9, 11

### 16.2. Abbreviations and acronyms

See overview table at [www.euphrac.eu](http://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).

### 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]:

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

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

| Hazard statements |   |
|-------------------|---|
| H304              | May be fatal if swallowed and enters airways. |
| H315              | Causes skin irritation.                       |
| H317              | May cause an allergic skin reaction.          |
| H319              | Causes serious eye irritation.                |



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### 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.