

# RAVENOL®

## PRODUCT CATALOGUE



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# Extra Fuel Economy EFE SAE OW-16

**FIRST  
WORLDWIDE  
OW-16**

## Engine oil of the new generation

### RAVENOL Extra Fuel Economy EFE SAE OW-16 – The World's first API SN Licensed OW-16 Engine Oil

A world premiere was held at the Automechanika 2014 in Frankfurt, Germany, when the Ravensberger Schmierstoffvertrieb GmbH "RAVENOL" presented their new, innovative engine oil RAVENOL EFE "Extra Fuel Economy" SAE OW-16 to a wide audience.

The German Lubricants Manufacturer is the first company to release an engine oil with the viscosity SAE OW-16 on the market and as such positions itself once more as a world leader in the new era of advanced Lubrication Technology. RAVENOL Extra Fuel Economy EFE SAE OW-16 is the first of the new generation of low viscosity engine oils in the world to be Approved and Licensed with the specification "API SN" by the American Petroleum Institute (API) with headquarters in Washington, D.C.

This futuristic low viscosity lubricant which uses revolutionary new additives such as Trinuclear Molybdenum and OFM (Organic Friction Modifiers) to give it unique properties has been demonstrated to provide greatly improved fuel economy as well as extending the life span of the engine. By reducing the emissions of greenhouse gases in the Earth's atmosphere, the use of RAVENOL EFE "Extra Fuel Economy" SAE OW-16 will also significantly reduce the impact of the internal combustion engine on the environment.

RAVENOL EFE "Extra Fuel Economy" SAE OW-16 is a high performance, low friction, fuel efficient engine oil that is more than capable of meeting the demands of today's motoring. It is suitable for both modern petrol engines and hybrid vehicles under all operating conditions, if the use of a Low-Viscosity oil of the grades OW-16, OW-20 or 5W-20 is recommended by the engine manufacturer.

As the first company in the world to obtain the Approval and Licensing of this new product by the major U.S. lobby group of the oil industry, Ravensberger Schmierstoffvertrieb GmbH has brought a product to the market that sets new standards in the trend to developing economical and environmentally friendly high-performance lubricants. With the introduction of RAVENOL EFE "Extra Fuel Economy" SAE OW-16 this forward thinking manufacturer has once again systematically pursued innovative ideas to develop and economically produce a new lubricant meeting the exacting demands of the latest generation of Automotive Lubrication Technology.



**...IS THE WORLDWIDE FIRST**  
*motor oil with license approval  
from API with its specification  
API SN and viscosity SAE OW-16.*



**RAVENOL®**



## RAVENOL Packaging Improves Repair Facility Efficiency

Ravenol Products can facilitate any repair operation with the most advanced engineered, highest quality lubrication products that are available in attractive 1, 4 and 5 Liter sizes, and also in bulk sizes of 20L, 60L, 208L and 1000L.



**TecDoc**  
DATA SUPPLIER

## Bag in Box

RAVENOL offers an optimised and sustainable container system for 20 L packages in connection with a shelf system for clean and structured storage and simple product bottling.

The RAVENOL BAG IN BOX system is made up of a robust outer box and a plastic bag with integrated outlet tap. This container system ensures both safe transport of our high-quality lubricants and space-saving and sustainable disposal of the packaging components. Once the bag is empty, it can be easily taken from the outer box. The system saves up to 80 % space with the empty packages as compared to package canisters of the same package size. The space-saving shelf with fastening casters offers a storage capacity of 2 x 5 BAG IN BOX bundles and is equipped with a tripping trough that can be removed to dispose of residues and for cleaning, the outlet taps of the bundles are suspended in a groove strip, which ensures simple and clean bottling of the product.



▶ simple and clean filling



▶ integrated tap



▶ detectable deflection roller with drip pan



▶ space-saving shelf

**RAVENOL – BAG IN BOX:**  
space-saving, well-structured, simple.



**RAVENOL®**

## Quality Assurance

*Our high quality products are “Made in Germany” and are produced by motivated and highly-qualified employees in compliance with the specifications of our integrated quality management system.*

The internationally recognized quality management system we employ guarantees a consistently high product quality, and the most stringent requirements of the automotive industry are met through the certification of **ISO/TS 16 949**, including the certification according to **DIN EN ISO 9001**. The documentation trail, as well as the customer-related processes and supplier relationships are particularly important to us and are constantly assessed under these certification demands. The continuous analysis and improvement of processes are natural for us and to the mutual benefit of our customers, and with the accreditation according to **DIN EN ISO/IEC 17 025**, the expertise of our testing laboratory is certified regularly.

Our consistent high quality meets the requirements and specifications of the automotive industry around the world, and the international approvals of leading OEM (Original Equipment Manufacturer) confirm the high quality of RAVENOL products.

### **OEM approvals for RAVENOL:**

RAVENOL branded products carry the Approval of many of the world's major motor manufacturers, such as

- ▶ Daimler
- ▶ Chrysler
- ▶ VW
- ▶ BMW
- ▶ Porsche
- ▶ MAN
- ▶ Volvo
- ▶ MTU
- ▶ Deutz
- ▶ ZF
- ▶ Steyr Motors
- ▶ Cummins
- ▶ and other

Our high standard of quality claim is also confirmed by being listed by the API (American Petroleum Institute) and NMMA (National Marine Manufacturers Association). Our Racing Kart oils carry full certification and approval from the governing body, FIA-CIK.

## Our range of products

*Automobile and truck engine oils, two-stroke engine oils, rally and racing oils, gearbox oils for automatic transmission systems, oils for mechanical gearboxes and drive shafts, agricultural machinery oils, hydraulic oils, industrial oils, brake fluids, customized products, general and heavy-duty greases, automobile care products, cleaners, winter chemicals and cooler protection products. The range is supplemented by high quality modern engine and transmission lubricants.*

Our products are approved by leading engine manufacturers in the automobile industry such as Daimler (MB), Chrysler, VW, BMW, Porsche, MAN, Volvo, MTU, Deutz, ZF, Steyr Motors, Cummins, JASO.

**It goes without saying that our products meet highest specifications.** Our products are API and NMMA listed. Our products are always to be found on the DEKRA approval list, published every year. To keep in line with our competitors and global market demands the Ravensberger Schmierstoffvertrieb GmbH is certified in according with ISO/TS 16 949.





**RAVENOL®**



## About Ravenol

*RAVENOL is the brand name of the Ravensberger Schmierstoffvertrieb GmbH which was founded in 1946 in the small town of Werther in Westphalia by Hans Triebel. Initially the company restricted its activities to the manufacture and sale of monograde engine oils and a selection of industrial cleaning products.*

In 1964, with the modernization and expansion of the company, multigrade oils of SAE grades 10W-30 and 20W-50 were added to the range, whilst the range of car care products and cleaners was extended to include specialist items for bicycles and motorcycles. In the following years the range of car care products was steadily increased and the lubricants, offered were extended to include the manufacture of semi-and fully synthetic oils.

The 1990s saw continuous expansion of sales activities at an international level and the RAVENOL brand gradually became known throughout many areas of the world. Nowadays, many

businesses from the automotive, engineering, steel and construction sectors, as well as mining, agriculture and transport companies rely on RAVENOL-branded oils and lubricants, and RAVENOL products are now available to both commercial enterprises and motorists in over 80 countries.

**We at RAVENOL recognise the growing demands being made by industries worldwide regarding diversity and quality, and are committed to extending and improving the RAVENOL product range. We understand that growth and modernisation is always a necessary ongoing process in order to be competitive in the increasingly complex technical lubricants market.**

The strategy of sustained growth was underlined by a comprehensive re-launch of the brand in autumn 2012. This forward-thinking policy is especially visible in the new product packaging, which has been modernized and optimized in both design and function.

RAVENOL products „Made in Germany“ are already accepted worldwide as premium lubricants of the highest quality. The partners of the Ravensberger Schmierstoffvertrieb GmbH appreciate the high product reliability and service from Germany.

## About Ravenol America

*The Ravensberger Schmierstoffvertrieb GmbH is now widely acknowledged as a global player in the lubricants market, and RAVENOL branded products are recognized not only for their high product reliability and quality.*

In 2012 Ravenol entered a new era, entering the U.S. and Canadian lubricant markets by joining in an exclusive cooperation with Blaufergnugen Inc. D/B/A Ravenol America, is a Wisconsin based corporation of over 25 years specializing in automotive mechanical maintenance products. Ravenol America business plan includes efficient distribution warehouses and the establishment of dealer networks for the entire Ravenol product line in the automotive, power sports (motorcycle/ATV/UTV etc.), Trucking fleets, marine and agriculture industries, throughout the U.S.A, Puerto Rico, U.S. Virgin Islands and Canada. Ravenol America will also provide engineering, technical and motor sport assistance for the entire Ravenol product line in North America.

### RAVENOL - History

**1946**

The Ravensberger Schmierstoffvertrieb GmbH was established by Habisch and Triebel in Werther specializing in Monograde Oils, Greases and industrial cleaning agents.

**1954**

Registration of the brand name RAVENOL. Expansion of the product range to include industrial oils and coolants.

**1964**

Introduction of multi-grade oils. Expansion of the automotive and bicycle care product ranges.

**1974**

Construction and extension of the premises for the purpose of modernization and expansion of the production area.

**1977**

Construction of a new warehouse and office building with adjoining second phase of construction in 1985.

**1985**

Product range extended to include semi-synthetic and fully synthetic engine and gear oils. Expansion of the distribution network and the first brand re-launch.

**1993**

Intensification of international sales activities. Renewed modernisation of the production area.

**2003**

Expansion and modernisation of the laboratories. Investment in new equipment to optimise the production of engine oils.

**2004**

Certification approval according to DIN EN ISO 9001:2000. First significant activity in global motorsport activities with racing lubricants. First appearances of the company at national and international trade fairs.

**2005**

Further expansion of global business. Laboratory certification according to DIN EN / IEC 17025:2005.

**2011**

Modernisation of the office and staff facilities. Certification to ISO / TS 16949:2009.

**2012**

Comprehensive Brand re-launch with modernised logo and new, futuristic design and optimisation of the product.



## Why CleanSynto®?

What does CleanSynto® mean?



+



= **CleanSynto®**

Synthetic oils +  
base oils + PAO + ester

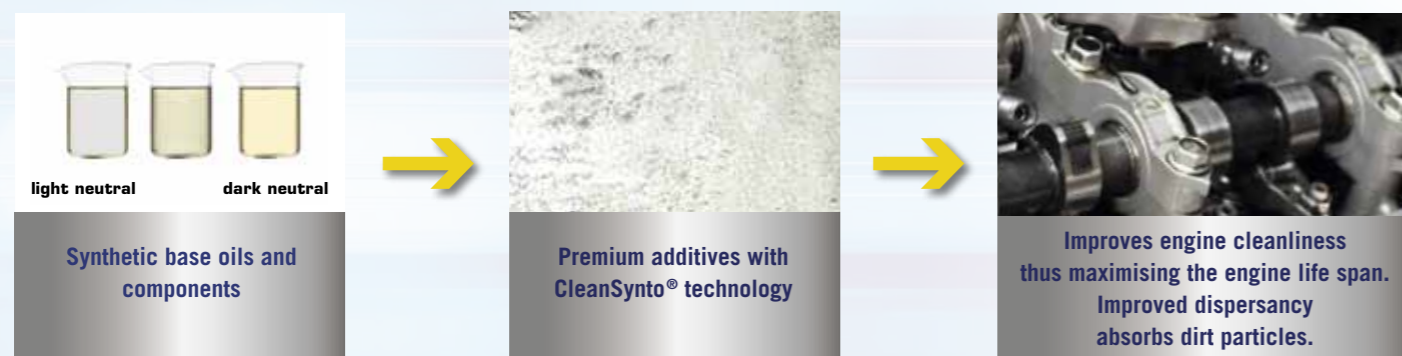
Unique Additive  
formulation

### Tried and Tested Formula



Soot and dirt particles can leave deposits which may result in blocked filters and contamination of oil passages and oil pumps.  
Engine efficiency declines and the risk of engine failure increases!

### Special CleanSynto® Formula



*The special CleanSynto® technology reduces the deposit of soot and dirt particles so that oil can reach critical lubricating points more effectively, keeping your engine clean longer. This can dramatically improve engine efficiency and significantly reduce the risk of engine problems in the future.*



When you protect the engine components, you extend the life span of the vehicle. For maximum long life protection use only lubricants with RAVENOL CleanSynto® technology and RAVENOL Extended Life Coolants.

RAVENOL CleanSynto® technology provides:

- ▶ Cleaner engine components
- ▶ Maximum engine durability
- ▶ Reduced maintenance costs

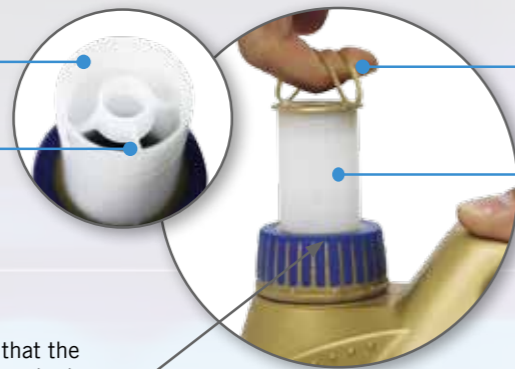




# The Packaging – The Container

The spout is equipped with a **resealable screw-top**.

The **special opening** prevents air bubbles forming, making pouring the lubricant simple, clean and efficient.



**Small intergrated handles** make pulling up the spout and resealing the container easy.

The security cap also consists of a **pull-out spout** for precise pouring of the lubricant. Simply pull on the double strip.

The **security cap** lets you know that the lubricant is completely new and untouched.

The **large, ergonomically designed handle** is just right for any size of hand.

**Different container colours** allow you to easily identify the individual types:  
Gold = Fully synthetic  
Silver = Semi synthetic  
Yellow = Mineral  
Blue = Marine lubricant

Attractive, **textured surface** makes using the container easier – even with oily hands.

The futuristically designed container underlines the **high quality and sportive image**.

The transparent **side stripes** with **embossed litre values** indicate exactly how much lubricant is in the container.



The **“Made in Germany”** stamp – an assurance of quality.



Secure handling with an additional **recessed grip** underneath the container for simple and efficient pouring of the lubricant.

# The Packaging – The Label



Rear label: multi-language  
Peel-off label



Additional **Counterfeit product security**: Under UV light the words **“RAVENOL-GERMANY-ORIGINAL”** will appear.

Label background is in the same colour as the individual containers for **easy product identification**. The **Carbon look** gives the consumer a feel for the sporting origins of the product.

**Easy to read product description**.  
Different label colours for easy product identification:  
Gold = Fully synthetic  
Silver = Semi synthetic  
Yellow = Mineral  
Blue = Marine lubricant  
**The “Made in Germany”**:  
Production in Germany – a powerful quality characteristic.



**RAVENOL-Hologram** for counterfeit product security.



The **large RAVENOL logo** provides for clear recognition, displaying the internationally known lubricant brand.

**Additional quality marks**.  
**Easily readable viscosity value**.  
**Additional product claim**.  
**The technical specifications and manufacturer approvals** at a glance.

Mark for waste collection.

**OEM approval labels**.

The **pack content** is recognisable at a glance.



**RAVENOL®**



## Ravenol Racing

*RAVENOL is rapidly becoming one of the world's most popular lubricant brands in motorsport.*

Since 2004, when the Ravensberger Schmierstoffvertrieb GmbH decided to again become involved in racing, the RAVENOL Brand has become firmly established in numerous motorsport disciplines. After initially entering the national touring car series, the fields of activity have steadily increased over the years to the point where RAVENOL is now the Technical Partner to both teams and series in a wide variety of motorsport categories from automotive to motorcycle and even power boat racing.

Ravenol Racing Oils enjoy a very high respect throughout the motorsport industry, especially that of numerous engine and transmission manufacturers. Large numbers of competitors in international Touring Car and Sports Car series are successfully using RAVENOL Racing Products. Ongoing technical support is provided to several single seater series, in particular the FIA Formula 3 Championship, where RAVENOL is the official partner.

In Motorsport across the globe RAVENOL is there, working closely with manufacturers, race engineers and drivers to develop some of the most technically advanced lubricants available today. A result of this close connection between RAVENOL and motorsport was the founding in 2014 of a general partnership with the Hockenheim-Ring GmbH. Now we can proudly announce, in addition to the RAVENOL Curve, the erection in the centre of the Formula 1 circuit of an impressive 13 m high RAVENOL oilcan on the roof of the Start/Finish building, now known as RAVENOL House, which will dominate the skyline of the Hockenheimring for many years to come.

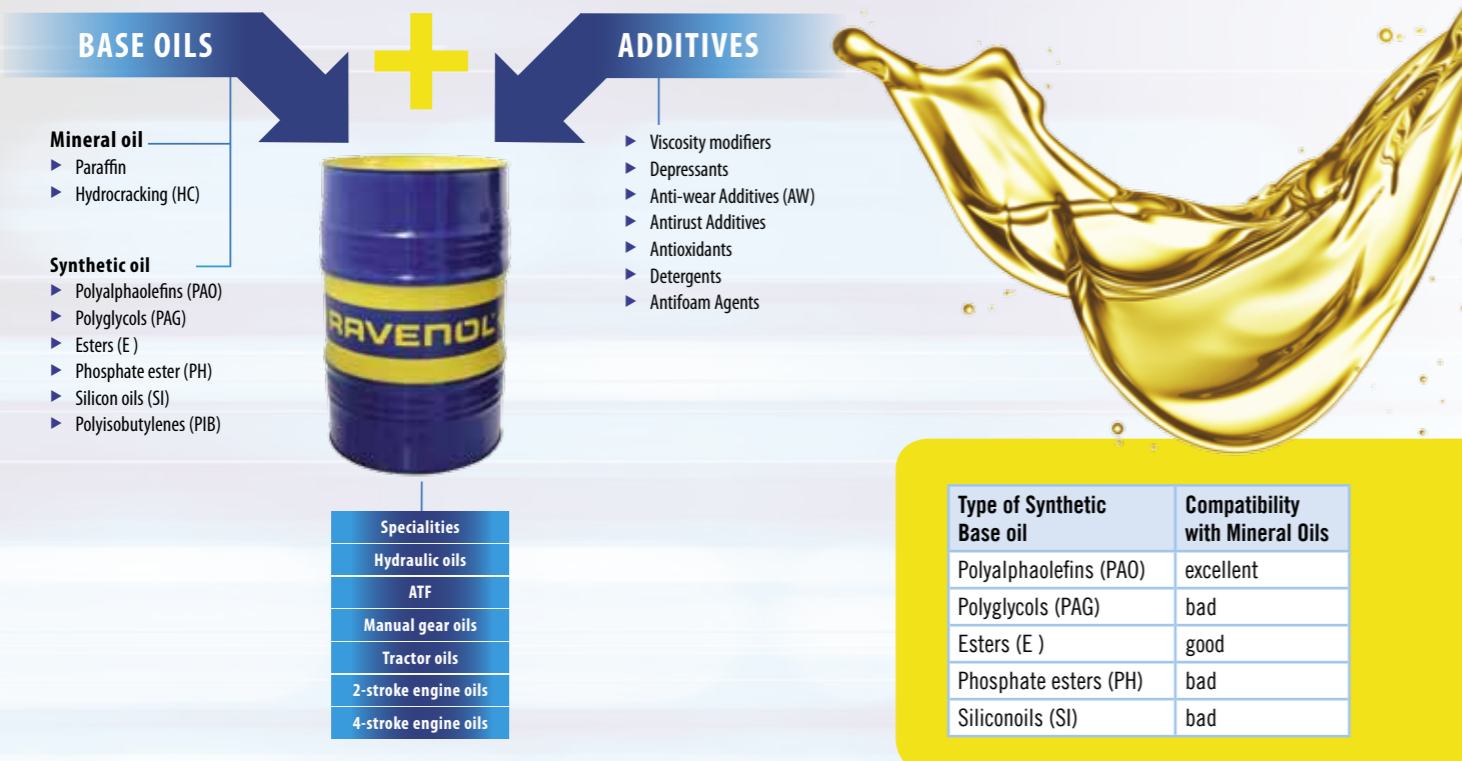




# Standards, Specifications and Classifications of lubricants

The most important function of lubricants is the reduction of friction and wear and the relative movement of two bearing surfaces is only possible if a lubricant is present.

A Lubricant is either an oil or a grease or a solid used to reduce friction between to surfaces. Lubricants can be classified into two groups: automotive and industrial lubricants – lube oils and greases.



## Engine oil viscosity classification SAE J300

The requirements of viscosity classification are determined now by SAE J300 revised in January 2015 by the Society of Automotive Engineers Inc. New York.

As the vehicles of European manufacturers have a wide spread occurrence, the basic classification system is ACEA which replaced CCMC classification in 1996. The development of lubricants is closely linked to the specific applications and application methods, the following section will consider both lubricants and their application.

The viscosity of an engine oil is an indicator of how readily a loadcarrying film can be formed at all lubrication points in an engine. As viscosity is a function of temperature, it applies to all potential ambient and operating temperatures. The first number (15W) refers to the viscosity grade at low temperatures (W from winter), whereas the second number (40) refers to the viscosity grade at high temperatures.

| SAE grade | Cold Cranking (CCS) | Cold Pumping (MRV) | Kinematic Viscosity, 100°C |         | HTHS, 150 °C                        |
|-----------|---------------------|--------------------|----------------------------|---------|-------------------------------------|
|           | (cP @ T °C)         | (cP @ T °C)        | (cSt)                      | (cSt)   | (cP)                                |
|           | Maximum             | Maximum            | Minimum                    | Maximum | Maximum                             |
| 0W        | 6,200 @ -35         | 60,000 @ -40       | 3.80                       | –       | –                                   |
| 5W        | 6,600 @ -30         | 60,000 @ -35       | 3.80                       | –       | –                                   |
| 10W       | 7,000 @ -20         | 60,000 @ -30       | 4.10                       | –       | –                                   |
| 15W       | 7,000 @ -15         | 60,000 @ -25       | 5.60                       | –       | –                                   |
| 20W       | 9,500 @ -15         | 60,000 @ -20       | 5.60                       | –       | –                                   |
| 25W       | 13,000 @ -10        | 60,000 @ -15       | 9.30                       | –       | –                                   |
| 8         | –                   | –                  | 4.00                       | < 6.1   | 1.70                                |
| 12        | –                   | –                  | 5.00                       | < 7.1   | 2.00                                |
| 16        | –                   | –                  | 6.10                       | < 8.2   | 2.30                                |
| 20        | –                   | –                  | 6.90                       | < 9.3   | 2.60                                |
| 30        | –                   | –                  | 9.30                       | < 12.5  | 2.90                                |
| 40        | –                   | –                  | 12.50                      | < 16.3  | 3.50<br>(0W-40, 5W-40, 10W-40)      |
| 40        | –                   | –                  | 12.50                      | < 16.3  | 3.70<br>(15W-40, 20W-40, 25W-40,40) |
| 50        | –                   | –                  | 16.30                      | < 21.9  | 3.70                                |
| 60        | –                   | –                  | 21.90                      | < 26.1  | 3.70                                |

1 mPa·s = 1cP, 1mm<sup>2</sup>/s = 1 cSt

## ACEA European Oil sequences-guideline

Three main factors specifically affecting the european market:

- ▶ Extended oil drain intervals
- ▶ Fuel savings
- ▶ Exhaust gas composition

ACEA specifications are guidelines for European cars. The different uses of the oils are labelled by the European ACEA 2012 classification by letter:

- A/B for passenger car gasoline and light duty diesel engines
- C for passenger cars gasoline and light duty diesel engines with after treatment devices
- E for commercial vehicles with heavy duty diesel engines

## ACEA A/B for gasoline and diesel engine oils

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A1/B1</b> | Stable, stay-in-grade oil intended for use at extended drain intervals in gasoline engines and car & light van diesel engines specifically designed to be capable of using low friction low viscosity oils with a high temperature/high shear rate viscosity of 2.6 mPa*s for xW/20 and 2.9 to 3.5 mPa*s for all other viscosity grades. These oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt. |
| <b>A3/B3</b> | Stable, stay-in-grade oil intended for use in high performance gasoline engines and car & light van diesel engines and/or for extended drain intervals where specified by the engine manufacturer, and/or for year-round use of low viscosity oils, and/or for severe operating conditions as defined by the engine manufacturer.                                                                                                         |
| <b>A3/B4</b> | Stable, stay-in-grade oil intended for use in high performance gasoline and direct injection diesel engines, but also suitable for applications described under A3/B3.                                                                                                                                                                                                                                                                    |
| <b>A5/B5</b> | Stable, stay-in-grade oil intended for use at extended drain intervals in high performance gasoline engines and car & light van diesel engines designed to be capable of using low friction low viscosity oils with a High temperature/High shear rate (HTHS) viscosity of 2.9 to 3.5 mPa*s. These oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt.                                             |

## ACEA C for Catalyst compatibility oils

|                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>C1</b>                                                                                                                                                                             | Stable, stay-in-grade oil intended for use as catalyst compatible oil in vehicles with DPF and TWC in high performance car and light van diesel and gasoline engines requiring low friction, low viscosity, low SAPS oils with a minimum HTHS viscosity of 2.9 mPa*s. These oils will increase the DPF and TWC life and maintain the vehicles fuel economy. <b>Warning:</b> these oils have the lowest SAPS limits and are unsuitable for use in some engines. Consult owner manual or handbook if in doubt. |
| <b>C2</b>                                                                                                                                                                             | Stable, stay-in-grade oil intended for use as catalyst compatible oil in vehicles with DPF and TWC in high performance car and light van diesel and gasoline engines designed to be capable of using low friction, low viscosity oils with a minimum HTHS viscosity of 2.9 mPa*s. These oils will increase the DPF and TWC life and maintain the vehicles fuel economy. <b>Warning:</b> these oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt.                     |
| <b>C3</b>                                                                                                                                                                             | Stable, stay-in-grade oil intended for use as catalyst compatible oil in vehicles with DPF and TWC in high performance car and light van diesel and gasoline engines, with a minimum HTHS viscosity of 3.5 mPa*s. These oils will increase the DPF and TWC life. <b>Warning:</b> these oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt.                                                                                                                            |
| <b>C4</b>                                                                                                                                                                             | Stable, stay-in-grade oil intended for use as catalyst compatible oil in vehicles with DPF and TWC in high performance car and light van diesel and gasoline engines requiring low SAPS oil with a minimum HTHS viscosity of 3.5 mPa*s. These oils will increase the DPF and TWC life. <b>Warning:</b> these oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt.                                                                                                      |
| <b>Abbreviation:</b><br>SAPS : Sulphated Ash, Phosphorus, Sulphur<br>DPF : Diesel Particulate Filter<br>TWC : Three way catalyst<br>HTHS : High temperature/High shear rate viscosity |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



## ACEA E for Heavy Duty Diesel engine oils

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>E4</b> | Stable, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for some EGR engines and some engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.                                                                                                                                                                                                              |
| <b>E6</b> | table, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for EGR engines, with or without particulate filters, and for engines fitted with SCR NOx reduction systems. E6 quality is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.                                                                        |
| <b>E7</b> | Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for most EGR engines and most engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.                                                                                                                                                           |
| <b>E9</b> | Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines with or without particulate filters, and for most EGR engines and for most engines fitted with SCR NOx reduction systems. E9 is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so Drivers Manuals and/or Dealers should be consulted if in doubt. |

## API Classification have been made by AMERICAN PETROLEUM INSTITUTE API, ENGINE OIL LICENSING AND CERTIFICATION SYSTEM EOLCS.

### Engine Oil Guide

#### 1. Performance Level

Motor oils designed for cars, vans, and light trucks with gasoline engines fall under API's "S" (Service) categories. Motor oils designed for heavy duty trucks and vehicles with diesel engines fall under API's "C" (Commercial) categories. Please see the Gasoline Engines and Diesel Engines charts for descriptions of current and obsolete API service categories.

#### 2. Viscosity Grade:

Measure of oil's thickness and ability to flow at certain temperatures. Vehicle requirements may vary. Follow your vehicle manufacturer's recommendations on SAE oil viscosity grade.

#### 3. Resource Conserving and Energy Conserving:

These designations apply to oils intended for gasoline-engine cars, vans, and light trucks. Widespread use of "Resource Conserving" or "Energy Conserving" oils may result in an overall savings of fuel in the vehicle fleet as a whole.

#### 4. Multiple Performance Levels:

Oils designed for diesel engine service might also meet gasoline engine service. For these oils the designation is "C" category first followed by the "S" category. "C" category oils have been formulated primarily for diesel engines and may not provide all of the performance requirements consistent with vehicle manufacturers' recommendations for gasoline fueled engines.



## Guide to SAE VISCOSITY GRADES OF ENGINE OIL for PASSENGER CARS

Multigrade oils such as SAE 5W-30 and 10W-30 are widely used because, under all but extremely hot or cold conditions, they are thin enough to flow at low temperatures and thick enough to perform satisfactorily at high temperatures. Note that vehicle requirements may vary.

Follow your vehicle manufacturer's recommendations on SAE oil viscosity grade.

| If lowest expected outdoor temperature is: | Typical SAE Viscosity Grades for Passenger Cars:               |
|--------------------------------------------|----------------------------------------------------------------|
| 0°C (32°F)                                 | 0W-20<br>0W-30<br>5W-20<br>5W-30<br>10W-30<br>10W-40<br>20W-50 |
| -18°C (0°F)                                | 0W-20<br>0W-30<br>5W-20<br>5W-30<br>10W-30<br>10W-40           |
| Unter -18°C (0°F)                          | 0W-20<br>0W-30<br>5W-20<br>5W-30                               |

The current and previous API Service Categories are listed below. Vehicle owners should refer to their owner's manuals before consulting these charts. Oils may have more than one performance level.

For automotive gasoline engines, the latest engine oil service category includes the performance properties of each earlier category. If an automotive owner's manual calls for an API SJ or SL oil, an API SM oil will provide full protection. For diesel engines, the latest category usually – but not always – includes the performance properties of an earlier category.





## GASOLINE ENGINES

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SN</b> | <b>Current</b><br>Introduced in October 2010, designed to provide improved high temperature deposit protection for pistons, more stringent sludge control, and seal compatibility. API SN with Resource Conserving matches ILSAC GF-5 by combining API SN performance with improved fuel economy, turbocharger protection, emission control system compatibility, and protection of engines operating on ethanol-containing fuels up to E85. |
| <b>SM</b> | <b>Current</b><br>For 2010 and older automotive engines.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>SL</b> | <b>Current</b><br>For 2004 and older automotive engines.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>SJ</b> | <b>Current</b><br>For 2001 and older automotive engines.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>SH</b> | <b>Obsolete</b><br>For 1996 and older engines.                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>SG</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in most gasoline-powered automotive engines built after 1993. May not provide adequate protection against build-up of engine sludge, oxidation or wear.                                                                                                                                                                                                                              |
| <b>SF</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in most gasoline-powered automotive engines built after 1988. May not provide adequate protection against build-up of engine sludge                                                                                                                                                                                                                                                  |
| <b>SE</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in gasoline-powered automotive engines built after 1979.                                                                                                                                                                                                                                                                                                                             |
| <b>SD</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in gasoline-powered automotive engines built after 1971. Use in more modern engines may cause unsatisfactory performance or equipment harm.                                                                                                                                                                                                                                          |
| <b>SC</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in gasoline-powered automotive engines built after 1967. Use in more modern engines may cause unsatisfactory performance or equipment harm.                                                                                                                                                                                                                                          |
| <b>SB</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in gasoline-powered automotive engines built after 1951. Use in more modern engines may cause unsatisfactory performance or equipment harm.                                                                                                                                                                                                                                          |
| <b>SA</b> | <b>Obsolete</b><br><b>CAUTION:</b> Contains no additives. Not suitable for use in gasoline-powered automotive engines built after 1930. Use in more modern engines may cause unsatisfactory performance or equipment harm.                                                                                                                                                                                                                   |

## API C DIESEL ENGINES

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CJ-4</b> | <b>Current</b><br>For high-speed four-stroke cycle diesel engines designed to meet 2010 model year on-highway and Tier 4 nonroad exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or drain interval. CJ-4 oils are especially effective at sustaining emission control system durability where particulate filters and other advanced aftertreatment systems are used. Optimum protection is provided for control of catalyst poisoning, particulate filter blocking, engine wear, piston deposits, low- and high-temperature stability, soot handling properties, oxidative thickening, foaming, and viscosity loss due to shear. API CJ-4 oils exceed the performance criteria of API CI-4 with CI-4 PLUS, CI-4, CH-4, CG-4 and CF-4 and can effectively lubricate engines calling for those API Service Categories. When using CJ-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval. |
| <b>CI-4</b> | <b>Current</b><br>Introduced in 2002. For high-speed, four-stroke engines designed to meet 2004 exhaust emission standards implemented in 2002. CI-4 oils are formulated to sustain engine durability where exhaust gas recirculation (EGR) is used and are intended for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, CG-4, and CH-4 oils. Some CI-4 oils may also qualify for the CI-4 PLUS designation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>CH-4</b> | <b>Current</b><br>Introduced in 1998. For high-speed, four-stroke engines designed to meet 1998 exhaust emission standards. CH-4 oils are specifically compounded for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, and CG-4 oils.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>CG-4</b> | <b>Obsolete</b><br>Introduced in 1995. For severe duty, high-speed, four-stroke engines using fuel with less than 0.5% weight sulfur. CG-4 oils are required for engines meeting 1994 emission standards. Can be used in place of CD, CE, and CF-4 oils.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## API C DIESELMOTOREN (Commercial-Klassen)

|              |                                                                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CF-4</b>  | <b>Obsolete</b><br>Introduced in 1990. For high-speed, four-stroke, naturally aspirated and turbocharged engines. Can be used in place of CD and CE oils.                                |
| <b>CF-2</b>  | <b>Current</b><br>Introduced in 1994. For severe duty, two-stroke-cycle engines. Can be used in place of CD-II oils.                                                                     |
| <b>CF</b>    | <b>Current</b><br>Introduced in 1994. For off-road, indirect-injected and other diesel engines including those using fuel with over 0.5% weight sulfur. Can be used in place of CD oils. |
| <b>CE</b>    | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in most diesel-powered automotive engines built after 1994.                                                                      |
| <b>CD-II</b> | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in most diesel-powered automotive engines built after 1994.                                                                      |
| <b>CD</b>    | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in most diesel-powered automotive engines built after 1994.                                                                      |
| <b>CC</b>    | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in diesel-powered engines built after 1990.                                                                                      |
| <b>CB</b>    | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in diesel-powered engines built after 1961.                                                                                      |
| <b>CA</b>    | <b>Obsolete</b><br><b>CAUTION:</b> Not suitable for use in diesel-powered engines built after 1959.                                                                                      |

## API EC Energy Conserving

|              |                                                                                                                                                                                                   |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EC 1</b>  | min. 1.5% fuel savings compared to a SAE 20W-30 reference oil in a 82'er Buick-petrol engine VG, 3.8 L., SEQ VI-Test                                                                              |
| <b>EC II</b> | as API EC 1, but min. 2.7% fuel savings                                                                                                                                                           |
| <b>EC</b>    | replaces API EC 1 & II. Only in conjunction with API SJ. Fuel savings: 0W-20, 5W-20 > 1.4%, 0W-XX, 5W-XX > 1.1%, 10W-XX, other > 0.5%, SEQ VI A-Test: 93'er Ford V8, 4.6 L., reference oil 5W-30. |

The ILSAC (International Standardization and Approval Committee) uses together with another American Institute and the JAMA (Japan Automobile Manufacturers Association) the API Classifikationen for an individual ILSAC Standard:

|             |                                                                                                                                                                                                                                                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GF-5</b> | <b>Current</b><br>Introduced in October 2010, designed to provide improved high temperature deposit protection for pistons and turbochargers, more stringent sludge control, improved fuel economy, enhanced emission control system compatibility, seal compatibility, and protection of engines operating on ethanol-containing fuels up to E85. |
| <b>GF-4</b> | <b>Obsolete</b><br>Use GF-5 where GF-4 is recommended.                                                                                                                                                                                                                                                                                             |
| <b>GF-3</b> | <b>Obsolete</b><br>Use GF-5 where GF-3 is recommended.                                                                                                                                                                                                                                                                                             |
| <b>GF-2</b> | <b>Obsolete</b><br>Use GF-5 where GF-2 is recommended.                                                                                                                                                                                                                                                                                             |
| <b>GF-1</b> | <b>Obsolete</b><br>Use GF-5 where GF-1 is recommended.                                                                                                                                                                                                                                                                                             |

## MIL-Spezifikationen (Military Standard in USA):

|              |                           |
|--------------|---------------------------|
| <b>MIL-L</b> | Lubricants                |
| <b>MIL-G</b> | Greases, Hydraulic fluids |



## Engine Oils for Passenger Cars – CleanSynto®

RAVENOL engine oils are developed to meet the specific requirements of the Vehicle Manufacturer and our extensive product range adequately meets the multitude of differing specifications in today's market. Our advanced lubricant technology not only meets, but often exceeds, the latest requirements of modern vehicles, with our state-of-the-art manufacturing facility producing lubricants in accordance with internationally recognized quality standards. Our exclusive CleanSynto® technology provides for an optimised lubrication and protection of critical moving parts, thus greatly extending the life of the automobile. The large number of OEM Approvals confirms the high quality of our products.



### RAVENOL Extra Fuel Economy EFE

SAE 0W-16 API SN

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol engines with and without turbo-charging and direct injection.

Honda 08215-99974, 08216-99974, 08232-P99S1LHE, Honda Ultra Next, Ultra Green, Hybrid Engine, Nissan KLANM-01A04 Extra Save X Eco, Mitsubishi MZ102661, MZ102662, Mitsubishi DiaQueen ECO Plus, Toyota 08880-11005

Art.-Nr.: 1111103



### RAVENOL High Fuel Economy HFE

SAE 5W-16 API SN

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol engines with and without turbo-charging and direct injection.

Honda 08215-99974, 08216-99974, 08232-P99S1LHE, Honda Ultra Next, Ultra Green, Hybrid Engine, Nissan KLANM-01A04 Extra Save X Eco, Mitsubishi MZ102661, MZ102662, Mitsubishi DiaQueen ECO Plus, Toyota 08880-11005

Art.-Nr.: 1111104



### RAVENOL Eco Synth ECS

SAE 0W-20 API SN(RC)/SM(EC) ACEA A5/B5

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

ILSAC GF-5, Resource Conserving, Energy Conserving

Art.-Nr.: 1111102



### RAVENOL SSO

SAE 0W-30 API SN/CF ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.5, VW 502 00/503 01(Audi)/ 505 00, BMW Longlife-01, BMW Longlife-98, GM-LL-A-025, GM-LL-B-025, Renault RN0700/RN0710

Art.-Nr.: 1111100



### RAVENOL Arctic Low SAPS ALS

SAE 0W-30 ACEA C3

Fully synthetic, fuel economy low friction motor oil with CleanSynto® Technology for petrol and diesel engines of high performance vehicles and vans with Diesel Particular Filter DPF and Three-Way Catalyst, which require HTHS >3,5 mPa\*s.

MB 229.51, BMW Longlife-04

Art.-Nr.: 1111137



### RAVENOL Super Synthetic Hydrocrack SSH

SAE 0W-30 API SM ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection. Minimises friction, wear and fuel consumption with excellent cold start characteristics. Suitable for extended oil change intervals where recommended by manufacturer.

MB 229.3, VW 502 00 / 505 00, BMW Longlife-98, Renault RN0710

Art.-Nr.: 1111138



### RAVENOL Super Synthetik Öl SSL

SAE 0W-40 API SN/CF ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car and van petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.3, MB 229.5, VW 502 00/505 00, BMW Longlife-01, Porsche A40, Renault RN0700/RN0710

Art.-Nr.: 1111108



### RAVENOL Super Fuel Economy SFE

SAE 5W-20 API SN(RC)/SM(EC) ACEA A5/B5

Fully synthetic low friction low SAPS motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

ILSAC GF-5, FORD WSS-M2C930-A/B, FORD WSS-M2C948-B, MAZDA, DaimlerChrysler MS-6395, HONDA, Nissan, Mitsubishi DiaQueen

Art.-Nr.: 1111110





**RAVENOL WIV**

SAE 0W-30 ACEA A5/B5

Fully synthetic low friction motor oil with CleanSynto® technology for VW and Audi petrol and diesel engines with pump-injection and extended service intervals (Longlife II).

VW 503 00/506 00/506 01

Art.-Nr.: 1111101



**RAVENOL HDS Hydrocrack Diesel Specific**

SAE 5W-30 API SM(EC) ACEA C4

Fully synthetic low friction mid SAPS motor oil with CleanSynto® technology for passenger car diesel engines (including DPF and TCW). Extended oil change intervals. Meets EURO IV and EURO V standard for emission reduction. HTHS >3.5 mPa\*s(cP).

Energy Conserving, Renault RN0720

Art.-Nr.: 1111121



**RAVENOL WIV III**

SAE 5W-30 ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology, which combines the high standard for petrol and diesel engines. Extended service intervals (Longlife III).

VW 504 00 / 507 00 (for Europe and Northamerica), Porsche C30 (Cayenne V6 except China and Cayenne Diesel)

Art.-Nr.: 1111120



**RAVENOL HPS**

SAE 5W-30 API SN(RC)/SM(EC)/SL/CF ACEA A3/B4

Semi-synthetic low friction motor oil with CleanSynto® technology with poly alpha olefin for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

ILSAC GF-5, Resource Conserving, Energy Conserving, MB 229.3, BMW Longlife-98, VW 502 00/505 00, Porsche C30

Art.-Nr.: 1111117



**RAVENOL FO**

SAE 5W-30 API SN(RC)/SM(EC)/SL(EC) ACEA A5/B5

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

ILSAC GF-5, Ford WSS-M2C913-A/B, Ford WSS-M2C913-C, Ford WSS-M2C913-D, Jaguar WSS-M2C913-B, MAZDA

Art.-Nr.: 1111115



**RAVENOL HCL**

SAE 5W-30 API SL/CF ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car and van petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.5, BMW Longlife-01, VW 502 00/505 00/501 01

Art.-Nr.: 1111118



**RAVENOL FEL**

SAE 5W-30 API SN/SM(EC)/CF ACEA A5/B5, C2

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines (including DPF and TCW). Extended oil change intervals. Meets EURO IV and EURO V standard for emission reduction. HTHS >2.9 mPa\*s(cP).

JASO DL-1 (D049RAV111), Ford WSS-M2C913D, Ford WSS-M2C934-A/C, ILSAC GF-4, PSA B71 2290

Art.-Nr.: 1111123



**RAVENOL HLS**

SAE 5W-30 API SM(EC)/SL/CF ACEA A3/B4, C3

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines (including DPF and TCW). Extended oil change intervals.

ILSAC GF-4, Energy Conserving, MB 229.51, MB 229.31, BMW Longlife-04, VW 502 00/505 00/505 01, GM dexos2, GMW 16177

Art.-Nr.: 1111119



**RAVENOL FDS**

SAE 5W-30 API SL/CF ACEA A1/B1, A5/B5

Fully synthetic, low friction motor oil with CleanSynto® Technology for petrol and diesel passenger cars with and without turbocharging and direct injection.

Renault RN0700, FORD WSS-M2C913-D

Art.-Nr.: 1111139



**RAVENOL DXG**

SAE 5W-30 API SN(RC)/SM(EC)

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol engines with and without turbo-charging and direct injection.

ILSAC GF-5, Resource Conserving, Energy Conserving, GM dexos1

Art.-Nr.: 1111124





### RAVENOL Longlife LSG

SAE 5W-30      API SM/CF      ACEA A3/B4-07, C3-08

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

First- and Service Fill for gasoline and diesel engines: Opel GM-LL-A-025 (B-040-2095), Opel GM-LL-B-025 (B-040-2098), GM dexos2

Art.-Nr.: 1111116



### RAVENOL VMO

SAE 5W-40      API SN/SM/CF      ACEA A3/B4, C3

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines (including pump-injection technology, DPF and TCW). Extended oil change intervals. Meets EURO IV and EURO V standard for emission reduction. Multi-Oil.

MB 229.31, VW 502 00/505 00/505 01, BMW Longlife-04, Porsche A40, Ford WSS-M2C 917-A, Fiat 9.55535-S2

Art.-Nr.: 1111133



### RAVENOL VMP

SAE 5W-30      API SM(EC)      ACEA A3/B4, C3

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines (including DPF and TCW). Extended oil change intervals. Meets EURO IV and EURO V standard for emission reduction. Multi-Oil.

BMW Longlife-04, VW 504 00 / 507 00 (for Europa and Nordamerika), MB 229.51, MB 229.31, Porsche C30 (Cayenne V6 (except China) and Cayenne Diesel), Fiat 9.55535-S1, Audi/Volkswagen G 052 195 M2, G 052 195 M4, G 052 195 M6, BMW 83 21 0 398 507, BMW/Mini 83 21 0 398 508, Mercedes Benz 000 989 89 01 10

Art.-Nr.: 1111122



### RAVENOL VollSynth Turbo VST

SAE 5W-40      API SN/CF      ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection. Minimizes friction, wear and fuel consumption with excellent cold start characteristics. Extended oil change intervals according to manufacturers recommendation.

MB 229.5, Porsche A40, VW 502 00/505 00, BMW Longlife-01, Opel GM-LL-B-025, Renault RN0700/RN0710

Art.-Nr.: 1111136



### RAVENOL VSI

SAE 5W-40      API SM/SL/CF      ACEA A3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.3, VW 502 00 / 505 00, BMW Longlife-98, Porsche A40 (except Cayenne V6), Opel GM-LL-B-025

Art.-Nr.: 1111130



### RAVENOL HCS

SAE 5W-40      API SM/SL/CF      ACEA A3/B4

Synthetic low friction motor oil with CleanSynto® technology for passenger car gasoline and diesel engines with and without turbo-charging and direct injection.

MB 229.3, VW 502 00/505 00, BMW Longlife-98, Renault RN0700/RN0710, Opel GM-LL-B-025, Porsche

Art.-Nr.: 1112105



### RAVENOL VPD

SAE 5W-40      API SM/CF      ACEA A3/B4, C3

Fully synthetic low SAPS motor oil with CleanSynto® technology for diesel engines with pump-injection with and without turbo-charging and direct injection.

VW 502 00/505 00/505 01, MB 229.51, Ford WSS M2C 917-A, BMW Longlife-04, Porsche

Art.-Nr.: 1111131



### RAVENOL TSJ

SAE 10W-30      API SN(RC), SM(EC)      ACEA A3/B4

Semi-synthetic multigrade with CleanSynto® technology for year round use in gasoline and diesel engines under all operating conditions. Especially for modern Japanese and Asian cars.

ILSAC GF-5, Resource Conserving, Energy Conserving, Toyota, Nissan, Honda, Mitsubishi, Mazda, Suzuki, Isuzu, Subaru, Daihatsu, KIA, Hyundai, SsangYong, Daewoo

Art.-Nr.: 1112106



### RAVENOL VDL

SAE 5W-40      API CF      ACEA B3/B4

Fully synthetic low friction motor oil with CleanSynto® technology for passenger car diesel engines with and without turbo-charging and direct injection.

MB 229.3, BMW Longlife-98, VW 505 00, Opel GM-LL-B-025, TOYOTA Common Rail, MITSUBISHI, NISSAN

Art.-Nr.: 1111132



### RAVENOL TSi

SAE 10W-40      API SN/SM/CF      ACEA A3/B4

Semi-synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.1, BMW Special Oil, VW 501 00/505 00, VW 502 00/500 00

Art.-Nr.: 1112110



## Engine Oils

Our classics in the field of passenger car engine oils. Tried and tested mineral based mono- and multi-grade engine oils suitable for use in many vehicles with petrol or diesel engines, as well as a wide range of other applications.



### RAVENOL DLO

SAE 10W-40      API CF      ACEA B4-02

Semi-synthetic low friction motor oil with CleanSynto® technology for passenger car diesel engines with and without turbo-charging and direct injection.

MB 229.1, BMW Special Oil, VW 500 00/501 01/505 00, Porsche

Art.-Nr.: 1112111



### RAVENOL LLO

SAE 10W-40      API SL(EC)/CF      ACEA A3/B3/B4

Semi-synthetic low friction motor oil with CleanSynto® technology for passenger car petrol and diesel engines with and without turbo-charging and direct injection.

MB 229.1, BMW Special Oil, VW 500 00/505 00

Art.-Nr.: 1112112



### RAVENOL Formel Standard

SAE 10W-30      API SF/CD      ACEA A2/B2

Mineral multigrade motor oil used in petrol and diesel engines with and without turbo charging in passenger cars and trucks.

MB 227.1, MIL-L-46152 B, MIL-L-2104 D, CCMC G4

Art.-Nr.: 1113110



### RAVENOL Turbo-C HD-C

SAE 15W-40      API CF-4/CF/SL      ACEA A3/B4, E2

Mineral multigrade motor oil used in petrol and diesel engines with and without turbo charging in passenger cars and trucks. Extended oil change intervals until 45,000 km.

MB 228.3, MB 229.1, MAN M 3275-1, MAN 271, ZF TE-ML 07C, VW 505 00, Allison C4, Caterpillar TO-2, Volvo VDS, MACK EO-L, MTU Type 2

Art.-Nr.: 1113103



### RAVENOL Formel Super

SAE 15W-40      API SF/CD      ACEA A2/B2

Mineral multigrade motor oil used in petrol and diesel engines with and without turbo charging in passenger cars and trucks.

MB 227.1, MIL-L-46152 B, MIL-L-2104 D, CCMC G4

Art.-Nr.: 1113115



### RAVENOL Formel Extra

SAE 20W-50      API SF/CD      ACEA A2/B2

Mineral multigrade motor oil used in petrol and diesel engines with and without turbo charging in passenger cars and trucks.

MB 227.1, MIL-L-46152 B, MIL-L-2104 D, CCMC G4

Art.-Nr.: 1113120



## High Mileage

RAVENOL engine oils for high mileage vehicles, specially developed for use on long distance journeys.



### RAVENOL Turbo Extra

SAE 20W-50      API SL/CF      ACEA A3/B4, E2

Mineral multigrade motor oil used in petrol and diesel engines with and without turbo charging in passenger cars.

MB 228.1, MB 229.1, VW 505 00, Volvo VDS, MAN 271, MTU

Art.-Nr.: 1113125



### RAVENOL Super HD

SAE 30      API SF/CD

Mineral monograde motor oil used in petrol and diesel engines with and without turbo charging in passenger car petrol and diesel engines, trucks and stationary plants.

MIL-L-46152 B, MIL-L-2104 D, MB 227.0, CCMC G4

Art.-Nr.: 1113300



### RAVENOL Super HD

SAE 50      API SF/CD

Mineral monograde motor oil used in petrol and diesel engines with and without turbo charging in passenger car petrol and diesel engines, trucks and stationary plants.

CCMC G2/D1, MIL-L-46152 B/C, Ford ESE-M2C 153C, Ford SMM-2C 9011A, GM 6085M

Art.-Nr.: 1113305



### RAVENOL SVE Standard Viscosity Ester Oil

SAE 5W-30      API SL/CF      ACEA A3/B4

Semi-synthetic low friction multigrade engine oil for vehicles with petrol and diesel engines with or without turbocharging and high mileage.

MB 229.5, BMW Longlife-01, VW 502 00/505 00/501 01

Art.-Nr.: 1116101



### RAVENOL SVS Standard Viscosity Synto Oil

SAE 5W-40      API SN/CF      ACEA A3/B4

Fully synthetic low friction multigrade engine oil for vehicles with petrol and diesel engines with or without turbocharging and high mileage.

MB 229.5, Porsche A40, VW 502 00/505 00, BMW Longlife-01, Opel GM-LL-B-025, Renault RN0700/RN0711

Art.-Nr.: 1115100



### RAVENOL HVT High Viscosity Turbo Oil

SAE 5W-50      API SN/CF      ACEA A3/B4

Fully synthetic high performance low friction engine oil for vehicles with petrol and diesel engine with or without turbocharging and direct injection and high mileage. Minimization of friction, wear and fuel consumption.

MB 229.1

Art.-Nr.: 1116102



### RAVENOL SVT Standard Viscosity Turbo Oil

SAE 10W-40      API SN/CF      ACEA A3/B4

Semi-synthetic low friction multigrade engine oil for vehicles with petrol and diesel engines with or without turbocharging and high mileage.

MB 229.1, BMW Special Oil, VW 501 00/505 00, VW 502 00/500 00

Art.-Nr.: 1116103



**RAVENOL HVE High Viscosity Ester Oil**

SAE 10W-50      API SN/CF      ACEA A3/B4

Fully synthetic high performance low friction engine oil for vehicles with petrol and diesel engine with or without turbocharging and direct injection and high mileage. Minimization of friction, wear and fuel consumption.

MB 229.1

Art.-Nr.: 1115101

**RAVENOL HVS High Viscosity Synto Oil**

SAE 10W-60      API SN/CF      ACEA A3/B4

Fully synthetic high performance low friction engine oil for vehicles with petrol and diesel engine with or without turbocharging and direct injection and high mileage. Minimization of friction, wear and fuel consumption.

MB 229.1

Art.-Nr.: 1115102

**RAVENOL SVP Standard Viscosity Performance Oil**

SAE 15W-40      API SJ/CF      ACEA A3/B4

Mineral multigrade engine oil for vehicles with petrol and diesel engines with or without turbocharging and high mileage.

MB 229.1, MAN 271, ZF TE-ML 07C, VW 500 00

Art.-Nr.: 1117100

**RAVENOL HVP High Viscosity Performance Oil**

SAE 15W-50      API SN/CF      ACEA A3/B4

Mineral high performance low friction engine oil for vehicles with petrol and diesel engine with or without turbocharging and direct injection and high mileage. Minimization of friction, wear and fuel consumption.

MB 229.1

Art.-Nr.: 1116104

## Rallye-/Racing Motor Oils

RAVENOL is now one of the most well known brands in the world of motor racing lubricants worldwide. Ravenol Racing Oils enjoy a very high respect throughout the motorsport industry, especially that of engine and transmission manufacturers. Large numbers of competitors in International Touring Car and Sports Car series are successfully using RAVENOL Racing-Products. Ongoing technical support is provided to several single seater series, in particular the FIA Formula 3 Championship, where RAVENOL is the official partner. The trust placed in RAVENOL products by the world of motor racing is confirmed every year by the FIA-CIK Homologation being granted for our products.







### RAVENOL RCS Racing Competition Synto

SAE 5W-40      API SM/CF      ACEA A3/B4

High performance fully synthetic engine oil especially developed to maximise power release whilst giving ultimate protection in both race, rallye and Off-Road applications. Use as an upgrade where an SAE 5W-30 was originally specified by the vehicle manufacturer.

Art.-Nr.: 1141090



### RAVENOL Racing Kart 2T

Fully synthetic, no-compromise two-stroke racing oil which carries full FIA-CIK Homologation and Approval. Based on wide experience in karting, road racing and motocross, it has been developed and tested worldwide under the harshest conditions, including on Grand Prix circuits.

FIA-CIK Homologation

Art.-Nr.: 1144100



### RAVENOL RRS Racing Rally Synto

SAE 5W-50      API SN/CF      ACEA A3/B4

Semi-synthetic multigrade engine oil based on the highest quality Ester and Poly-Alpha Olefin technology. Specially formulated for use in competition and motorsport engines operating in the most operating conditions.

MB 229.1

Art.-Nr.: 1142100



### RAVENOL Racing Castor 2T

Two-stroke Kart oil with castor technology and ester synthetic additives for 2-stroke engines with methanol and ethanol as fuel, e.g. Kart engines and Speedway engines. Miscible with petrol, methanol and ethanol. Do not mix with mineral and synthetic two-stroke motor oils. Recommended mixing ratio 20:1.

FIA-CIK Homologation

Art.-Nr.: 1144101



### RAVENOL RSE Racing Sport Ester

SAE 10W-50      API SN/CF      ACEA A3/B4

Fully synthetic multigrade engine oil based on the highest quality Ester and Poly-Alpha Olefin technology. Specially formulated for use in competition engines using low friction technology but providing a better viscosity at high operating temperatures.

MB 229.1

Art.-Nr.: 1141105



### RAVENOL Racing Gear Oil

API GL-5+LS

Fully synthetic transmission oil especially developed for and approved by Drexler transmissions in Germany. Ideal for highly stressed differentials. Reduces foaming, increases thermal stability and provides ultimate wear protection.

Drexler limited slip differential (Lamellen-Selbstsperrdifferential) in BMW Alpina B5, B6, GT3, GT4, M3, Z4 and World Touring Car Championship (WTCC), Chrysler Viper GT3, Corvette Z06, Fiat Abarth, Lamborghini Murcielago, Mercedes AMG C 63, CLS 63, E 63, SL 63, SLS

Art.-Nr.: 1221111



### RAVENOL RSS Racing Sport Synto

SAE 10W-60      API SN/CF      ACEA A3/B4

Fully synthetic multigrade engine oil based on the highest quality Ester and Poly-Alpha Olefin technology. Recommended for all Motorsport applications requiring a thicker grade of oil. Uses latest low friction technology to ensure maximum release of power.

MB 229.1

Art.-Nr.: 1141100



### RAVENOL RHP Racing High Performance Gear

SAE 75W-90      API GL-4/GL-5

Fully synthetic transmission oil especially developed for both synchronic and dog engagement gearboxes in motorsport. It provides outstanding wear protection and thermal stability. Especially suitable for front wheel drive applications.

Art.-Nr.: 1145100



### RAVENOL RFS Racing Formel Sport

SAE 15W-50      API SN/CF      ACEA A3/B4

Semi-synthetic multigrade engine oil based on the highest quality Ester and Poly-Alpha Olefin technology. Specially formulated for use in Motorsport applications providing maximum release of power with ultimate engine protection.

MB 229.1

Art.-Nr.: 1142105



### RAVENOL Racing Brake Fluid R 325+

Very heavy-duty high-performance brake fluid with a very high wet boiling point especially developed for Motorsport (cars and motorcycles) and similar high temperature applications.

FMVSS No. 116 DOT 4, ISO 4925

Art.-Nr.: 1350604



# Natural Gas Engine Oils

There is currently no universal, harmonized specification for gas engine oils. The large variations in operating conditions between mobile and stationary engines generally require oils with different additive packages. A general difference is made between high-, medium-, and low-ash types which are recommended by the manufacturers in line with the designed use of the engine. As a rule, gas engine oils are subject to high oxidation and nitration which can accelerate the aging of the oil. Gas-powered cars normally use the same conventional engine oils as are used in gasoline-powered engines. Diesel engines usually need oils with a higher TBN (Total Base Number) and with more dispersants than gasoline engine oils. Typical qualities for car engines are API SL and/or ACEA A3 (gasoline engines) as well as API CG-4 and/or ACEA B3 (diesel engines). Similarly to the automotive sector, multigrade oils are used to cope with variable operating conditions and to guarantee reliable lubrications at low ambient temperatures. As the number of CNG-powered cars increases, there is an increasing pressure to develop oils which are especially formulated for these applications.

This could mark the beginning of a future, uniform specification. Special multigrade oils have already been developed for use in heavy diesel engines, with CNG-powered buses being the major application. These have been tested and approved by various engine manufacturers. Examples of these approvals are Mercedes-Benz Sheet 226.9 or MAN M 3271. These oils were tested in bench tests as well as in realistic field trials. Stationary gas engines can make significantly more complex demands on the oil and this has an effect on their development. Oils for stationary gas engines thus require significantly more development work and have to be better matched to the engine and operating conditions than normal automotive engine oils.

The development and application of gas engine oils thus normally takes place in close cooperation between the oil and engine manufacturers who normally issue an approval after successful completion of trials. Gas engine oils were developed for total energy systems operating in high-temperature environments. It also gives maximum protection when the natural gas contains excess sulfur. The oil stands up very well under severe oxidation and nitration in the natural gas engine; alternately fueled vehicles powered by compressed natural gas or liquified natural gas. The formulation is maximized for outstanding deposit control.



**RAVENOL TEG Gasmotorenöl**  
SAE 10W-40    API SL/CF    ACEA A3/B3  
Semi synthetic high alloyed motor oil for natural gas engines.  
Natural gas engines

Art.-Nr.: 1132100



**RAVENOL MGS Gasmotorenöl**  
SAE 15W-40    API CF-4/SJ    ACEA A3/B4, E2  
High performance mineral multi grade motor oil used in natural gas engines.  
MAN 3271-1 (vehicle engines), Renault RGD, MB 226.9, TEDOM Group 1P (61-O-0281.2), Volvo CNG

Art.-Nr.: 1133100



**RAVENOL Gasmotorenöl**  
SAE 40  
Mineral motor oil for lubrication of 4-stroke natural gas engines for gases with low sulfur content.  
Application for natural gas, biogas and sewage gas.

Art.-Nr.: 1133105

# Automatic Transmission Fluids (ATF)

Motor vehicles are equipped with manual, automatic, distribution and axel drives. To ensure proper function of the transmission over the entire period of use, it requires special gear oils for the corresponding modules. Therefore, gear oils are today a structural element in the development.

ATF (automatic transmission fluid) are special lubricants with high requirements for use in automatic transmissions. In particular, good viscosity/temperature behavior, high oxidation and shear stability, excellent foaming properties and air delivery capacity, extreme pressure properties and a defined friction behavior are necessary. In addition to special base oils, ATF oils consist of a variety of additives to fulfil all requirements.

To avoid confusion with engine oils, automatic transmission fluids are colored red.

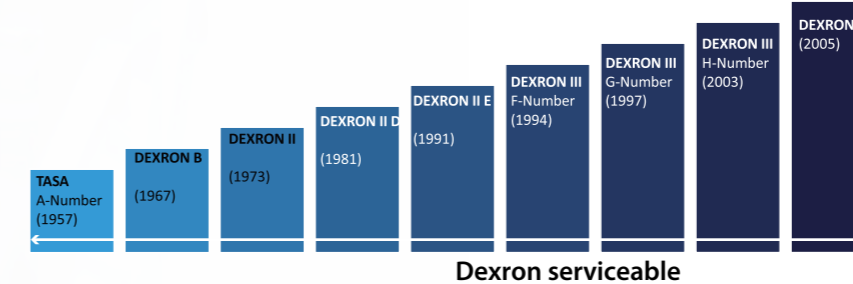
## REQUIREMENTS FOR AUTOMATIC TRANSMISSION FLUIDS:

- ▶ Transfer of forces on tooth flanks in the torque converter (CVT variator)
- ▶ Lubrication of sliding/rolling elements (rolling and plain bearings, planetary gear sets, freewheels)
- ▶ Protection against corrosion, wear, deposits, foams
- ▶ Application-specific frictional behaviour of the clutches and brake bands for shifting and transfer capability
- ▶ Seal compatibility, so elastomeric not become brittle, shrink or soften
- ▶ Optimum viscosity for cold and hot operation
- ▶ Cooling of the gearbox from the inside by heat transport to the transmission housing or a separate oil cooler
- ▶ High oxidation stability and aging stability for long residence times of oil

## Specifications:

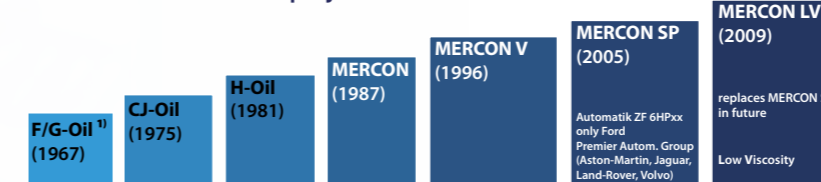
SAE viscosity classes are not required for ATF, they are part of each specification. The world's most important specifications for automatic transmissions are DEXRON from General Motors and MERCON from Ford.

### DEXRON® General Motors



- TASA = Type A, Suffix A
- A-, B-, C-, D-, E-, F-, G-, H-, N > approval numbers (Armour Qualification Institute)
- () = year of specification implementation

### MERCON® Ford Motor Company



<sup>1)</sup> F/G-oil not miscible with different ATF





## ATF – Professional Line

Developed using carefully selected additives and inhibitors to ensure the correct functioning of specialised automatic transmissions.



### RAVENOL ATF M 6-Serie

Synthetic ATF for 5-speed Mercedes-Benz automatic transmission.

MB 236.10 (A 001 989 21 03), Chrysler 52107891AA

Art.-Nr.: 1212105



### RAVENOL ATF M 9-Serie

Synthetic ATF for 7-speed Mercedes-Benz automatic transmission (NAG2VSPORT).

MB 236.14 (A 001 989 68 03 10), MB 236.12, MB 236.10

Art.-Nr.: 1211108



### RAVENOL ATF M 9-FE Serie

Synthetic ATF for 7-speed ATF 7G-Tronic with ECO Stop-Start function of Mercedes-Benz (NAG2FE+).

MB 236.15, MB A 001 989 78 03, MB A 001 989 77 03, ATF 7134FE, ATF 134FE, ATF 134ME

Art.-Nr.: 1211127



### RAVENOL ATF 5/4 HP Fluid

Fully synthetic universal ATF (Automatic-Transmission-Fluid) for ZF automatic transmission (4HP and 5HP).

Alfa Romeo 20HP 14891900, ATF LT 71141, ATF LA 2634, BMW 8322 9407765, BMW 8322 9407807, Citroën/Peugeot AL4 PR 9736.22, Jaguar JLM 20237, Land Rover STC4863, Mercedes A 0019892203, Porsche 999.917.547.00, Renault DPO, VW/Audi G052162 A1/A2/A6, VW TL 52 162, ZF S671 090 170

Art.-Nr.: 1212104



### RAVENOL ATF 6HP Fluid

Synthetic ATF for ZF 6HP speed boxes. Backwards compatible for ZF 4- and 5-stroke passenger car ATF except 6HP26A61 in vehicles with AUDI W12 (only original VW G055162A2 blue) and of 6HP19X for AUDI Q7, 6HP19A, 6HP28AF (only original VW G060162A2 green).

ZF 6HP19, 6HP21, 6HP26, 6HP28, 6HP32, 6HP34, BMW 83220144137, ATF M1375.4, 83220142516, 83222305396 (ATF2), FORD MERCON SP XT-6-QSP (6R60, 6R75, 6R80), Jaguar C2C 8432, Land Rover TYK50 0050, VW/AUDI G 055005 A1/A2/A6, ZF S671 090 252/3/5

Art.-Nr.: 1211112



### RAVENOL ATF 8HP Fluid

Synthetic ATF for 8HP-series transmission of ZF and 6-speed automatic transmissions of 6HP-series for AUDI Q7.

BMW 83222305397 (until 02.2013 83222152426), ATF L 12108, VW/AUDI G 060162 A1/A2/A6, ZF TE-ML ZF S671 090 312, ZF TE-ML 11 9HP48, Land Rover LR023288 and LR023289

Art.-Nr.: 1211124



### RAVENOL Transfer Fluid TF-0870

Fully synthetic gear lubricant for the latest generation of electronically controlled active transfer box.

BMW 83220397244 for Transfer Case xDrive: ATC300, ATC350, ATC400, ATC450, ATC500, ATC700, Land Rover IYK500010, ATF TF-0753, Nissan 999MP-TF0870P, KLD22-00001EU for Transfer Case ATX90A, Porsche 000-043-301-36 / 00004330136 for Cayenne Transfer Case, VW G052515A2 for Transfer Case OAD and OBV for Touareg, Q7, VW G052533A2 for Transfer Case OC7 for Amarok.

Art.-Nr.: 1211128



### RAVENOL T-IV-Fluid

GM-Specification: Dexron® II E

Universal ATF (Automatic-Transmission-Fluid) for TOYOTA and AISIN AW automatic transmission.

Aisin Warner Automatic Gearbox, BMW 83 22 7 542 290 for MINI 6-Speed Aisin F21, 83 22 0 402 413 for MINI 6-Speed Aisin F21 (only USA), FORD 1327936, WSS-M2C924-A, XT-8QAW, General Motors 9986195, OPEL/GM 1940771, 1940774, Land Rover LR002748 6-Speed Aisin F21, RENAULT 7711218368 SU1 Gear, 7711172225 for transmission SUO and SU1, TOYOTA JWS 3309, 08886-81016, 00279-000T4, 08886-01705, VOLVO 1161540, VW/AUDI G 055 025 A2, NISSAN 999MP-MTK00P for RE5F22A (Aisin AW55-50SN Nissan Altima, Maxima, Quest, Sentra), Matic K, Mazda K020-WO-049, Suzuki 99000-22800-001, ESSO JWS3317

Art.-Nr.: 1212102



### RAVENOL ATF T-WS Lifetime

Synthetic ATF with a special formulation for long-life filling.

Toyota/Lexus JWS3324, Toyota 08886-02305, 00289-ATFWS, 08886-81210, Aisin Warner Automatic Gearbox from 2008, Chrysler 05189978AA, Chrysler 05189979AA, Chrysler Mopar AS68RC, VW/AUDI transmission OC8 (Touareg 2011-, Q7 2010-), VW G055540A2, Isuzu 2-90531-200-0, 2-90531-201-0, VOLVO 31256774, 31256775, 31256776

Art.-Nr.: 1211106



**RAVENOL ATF FZ**

RAVENOL ATF FZ is a Full Synth. Low Viscosity ATF (Automatic-Transmission-Fluid) especially for the Mazda 6-gear transmission FW6A-EL and FW6AX-EL with SKYACTIV technology.

Mazda ATF FZ, Mazda 0000-FZ-113E-01, Mazda 8300-77-246

Art.-Nr.: 1211130

**RAVENOL F-LV Fluid**

Fully synthetic ATF for Ford automatic transmission 4F27E from 2008 and 4R75W, 5R110W, 6R80, 6F35, 6F50, ECVT from 2009.

Ford XT-10-QLVC, Ford WSS-M2C-938A, Mercon LV, Motorcraft XT-10-DLV, Motorcraft XT-10-QLV

Art.-Nr.: 1211120

**RAVENOL ATF DSIH 6**

Special fully synthetic ATF Fluid based on PAO for 6-Speed automatic transmission of Drivetrain Systems International Holdings (DSIH) for SsangYong KYRON, ACTYON, ACTYON SPORTS, Geely GC7, GX7, SC7 and EC8.

SsangYong 0578-244021, Caltex 1712, ATF 3292, DSI M11 6-Speed Korando, DSI M78 6-Speed Kyron, Actyon

Art.-Nr.: 1211133

**RAVENOL ATF Matic Type D**

Fully synthetic ATF for 4- and 5-speed automatic transmissions of Nissan.

Nissan KLE2200002, KLE2000004, 999MP-MTS00P, KE90899931

Art.-Nr.: 1211121

**RAVENOL ATF Type J2 / S Fluid**

Fully synthetic ATF for Jatco Renault, Nissan, Mitsubishi transmissions.

Nissan KE908-99932 Matic Fluid J, KLE2300002 Matic Fluid J, 999MP-MTJ00P Matic Fluid J, 999MP-MTS00P Matic Fluid S, KLE24 00002 Matic Fluid S, Mitsubishi MZ 313771 ATF Fluid J2, 4031610 ATF Fluid J3, Renault Matic J6

Art.-Nr.: 1211115

**RAVENOL ATF MM SP-III Fluid**

Universal ATF (Automatic-Transmission-Fluid) for MITSUBISHI, HYUNDAI and KIA-automatic transmissions. Can replace SP and SP-II Fluids.

Mitsubishi 4024610, 4024401, ACH1ZC1X05, MZ320159, MZ320160, MZ320162, MZ320216, ATF SP-III, ATF SP-3, Hyundai 04500-00100, 04500-00400, 04500-00A00, 00232-19012.

Art.-Nr.: 1212103

**RAVENOL ATF JF405E**

Fully synthetic ATF for JATCO 4-speed automatic transmissions JF405E or JF402E for Hyundai, Kia, Nissan, Daewoo, Mazda.

Suzuki 99000-22A80-025, ATF 3314, Hyundai 45000-34D00, 04500-00130, 04500-00430, JWS3314

Art.-Nr.: 1211118

**RAVENOL ATF RED-1**

Fully synthetic ATF for special 5-speed automatic transmissions of KIA and Hyundai.

ATF RED-1, KIA UMO40-CH020, 04500-00140, Hyundai 04500-00140

Art.-Nr.: 1211117

**RAVENOL ATF JF506E**

Fully synthetic ATF for JATCO 5-speed automatic transmission JF506E for Ford, LandRover, VW, Jaguar, Seat.

FORD WSS-M2C922-A1 for Durashift 5F31J, Land Rover LRN402, STC53016, STC50531, Jaguar C2S 12120, ATF Type K17, Type 3100 PL085, N402, VW G052990A2 for 09A and 09B 5-Speed Tiptronic

Art.-Nr.: 1211119

**RAVENOL ATF SP-IV Fluid**

Synthetic ATF for 6-speed Hyundai automatic transmission from year 2009.

6-speed Hyundai automatic transmissions: Hyundai 00232-19045, 04500-00115, Hyundai Elantra UD 2011- L4 1.6L, L4 2.0L, iX35 2009 - L4 2.0L, 2.4L, Santa Fe 2009 - L4 2.0L, 2.2L, 2.4L, V6 3.5L, Sonata 2009- L4 2.0L, 2.4L, V6 3.5L, Tucson 2009- L4 2.0L, 2.4L, Veracruz 2011- V6 3.0, Grandeur HG 2011- V6 3.3L, 3.8L, Azera TG 2011- V6 3.3L, 3.8L, KIA Sorento 2009- V6 3.3L, 3.5L, 3.8L, Sorento XM 2011 - L4 2.4L, V6 3.5L, Sportage 2010- L4 2.0L, 2.4L, Forte/Forte Koup 2010- L4 2.0L, 2.4L, Optima TF 2011- L4 2.0L, 2.4L, Sedona VQ 2011- V6 3.5L

Art.-Nr.: 1211107



**RAVENOL ATF MM-PA Fluid**

Fully synthetic ATF for automatic transmissions of Mitsubishi V5AWF.

Mitsubishi V5AWF, 4030401, DIA QUEEN ATF-PA

Art.-Nr.: 1211126

**RAVENOL ATF BTR 95LE**

Fully synthetic ATF for transmissions of BTR Engineering Australia for SsangYong, FORD, Maserati, Mitsubishi and others.

M74LE, M85LE, M91LE, M95LE, ATF Type TQ95

Art.-Nr.: 1211116

**RAVENOL ATF Type Z1 Fluid**

Fully synthetic ATF for all 4- and 5-speed automatic transmissions of Honda.

Honda 08266-99904, Honda 08266-99907, Honda 08200-9005

Art.-Nr.: 1211109

**RAVENOL CVT Fluid**

Fully synthetic automatic transmission fluid for CVT-automatic transmissions.

BMW CVT EZL 799A, Ford EU WSS-M2C928-A, Focus C-Max CFT23, Ford USA WSS-M2C933-A, XT-7-QCFT Freestyle, Five Hundred CFT30, Honda CVT Fluid 08200-9006, HMMF Ultra Fluid 08260-99904, 08260-99907, MB 236.20 A 0019894603, Mazda TFF CVT Fluid TC JWS3320 K020-WO-051W, Nissan CVT Fluid NS-1, KLE50 00002, KLE50 00004, Opel/GM 1940713, Subaru i-CVT Fluid K0415-YA090, Suzuki S-CVT 99000-22801-000, Toyota CVT Fluid TC 08886-02105, VW/AUDI G052180A1/A2/A6, TL 52180, VW G 052 516 A2, Mini Cooper CVT

Art.-Nr.: 1211110

**RAVENOL DW-1 Fluid**

Fully synthetic ATF for automatic transmissions of Honda.

Honda 08200-9008, 08200-9009, Honda 08266-99964, 08266-99967

Art.-Nr.: 1211125

**RAVENOL CVT KFE Fluid**

Fully synthetic CVT (Continuously Variable Transmission) fluid with low viscosity based on fully synthetic oil (PAO) with a special additive and inhibition to ensure the proper operation of the automatic transmissions.

Toyota – 08886-02505, 08886-02503

Art.-Nr.: 1211134

**RAVENOL DPS Fluid**

Synthetic special fluid with special additives for Dual Pump System (DPS) of Honda.

Honda DPFI (DPSF), 08293-99904, DPSF2 Ultra 4WD Rear, 08200-9007

Art.-Nr.: 1211113

**RAVENOL CVTF NS2 / J1 Fluid**

Fully synthetic CVTF (Continuously Variable Transmission Fluid) for CVT of JATCO.

Mitsubishi S0001401, Nissan KLE520000403, KLE5200002, PSA Standard 9735EF, Suzuki CVT Fluid Green-1 99000-22B15-046, Dodge Caliber, Jeep Compass, Jeep Patriot

Art.-Nr.: 1211114

**RAVENOL SU5 ATF Fluid**

Fully synthetic ATF for 5-speed automatic transmissions of Subaru.

Subaru 4ATF, 5ATF, ATF HP, Subaru K0415-Y0700, Subaru SOA868V9240, SOA868V9241, SOA427V1500

Art.-Nr.: 1211122

**RAVENOL CVTF NS3 / J4 Fluid**

Fully synthetic CVTF (Continuously Variable Transmission Fluid), based on PAO with special additives and inhibition.

Nissan KLE53-00004, KLE53-00002, 999MP-NS300P, ATF NS-3, Mitsubishi MZ320261, MZ320262, MZ320288, MZ102658, ATF J4.

Art.-Nr.: 1211132



## ATF – Transmission Fluids for automatic transmissions

Our classics in the field of automatic gearbox fluids based on many years of experience. Proven formulations ensure correct functioning of the transmission.



### RAVENOL DCT/DSG Getriebe Fluid

Semi-synthetic transmission fluid for Dual Clutch Gear.

MB 236.21, VW G 052 182 A2, Audi G 052 529 A2 S-Tronic, BMW DCTF-1, BMW 83220440214, 83222148579, 83222148578, 83222147477, FORD 1490763, FORD 1490761, FORD WSS-M2C936-A, FORD USA XT-11-QDC, FORD WSD-M2C200-D2, Chrysler 68044345 EA, Peugeot/Citroën 9734.S2 for DCS6 (Peugeot 4007, CITROËN C-CROSSER), FIAT 9.55550-MZ6 for TCT (Twin Clutch Transmission) in Alfa Romeo MiTo and Giulietta, Renault EDC (Efficiency Dual Clutch System), VOLVO 1161838, VOLVO 1161839, MITSUBISHI MZ320065, MITSUBISHI Dia-Queen SSTF-I, BOT 341, Porsche 0000 043 20

Art.-Nr.: 1212106



### RAVENOL DCT GT-R Fluid

Special transmission fluid for use in the new Nissan GT-R R35 double clutch transmission (DCT).

Nissan KLD4100002EU, KLD41-00002, 999MP-GTRTOOP

Art.-Nr.: 1211129



### RAVENOL ATF +4® Fluid

GM-Specification: ATF+4®

Fully synthetic automatic transmission fluid for Chrysler, Dodge, Plymouth, Jeep and Eagle automatic transmissions. Mixable with all ATF+4®, ATF+2® or ATF+3® transmission fluids.

License-No. 40630041 FCA US LLC (formerly known as Chrysler Group LLC), Mopar 68218057AA 68218058AA 05013457AA 05013458AA MS-9602

Art.-Nr.: 1211100



### RAVENOL ATF Fluid Type F

Special transmission fluid for Ford, Borg-Wagner, Volvo.

FORD Type M2C-33F/G, Motorcraft XT-1-QF, VOLVO 97330

Art.-Nr.: 1213105



### RAVENOL ATF Fluid

GM-Specification: Type A Suffix A (TASA)

Mineral automatic transmission fluid (ATF) for hydrostatic and hydrodynamic systems, if ATF Type A Suffix A is required. For use in automatic transmissions, turbo clutches, power couplings and other hydrostatic and hydrodynamic systems.

MB 236.2, MAN 339 Type A, Renk Doromat, Cat. T0-2, Allison C4

Art.-Nr.: 1213101



### RAVENOL ATF Dexron D II

GM-Specification: DEXRON® II D

High performance mineral transmission fluid for automatic gearboxes, hydraulic steering, power converters and transmissions.

MB 236.6, MB 236.7, ZF TE-ML 03D, 04D, 11A, 14A, 17C, 05L, VOITH H55.6335.xx, MAN 339 Type Z-1, Ford SQM-9010B, Ford M2C-138 CJ, 166H, 185A, Cat. T0-2, MERCON, RENK DOROMAT, CVT, Allison C3/C4.

Art.-Nr.: 1213102



**RAVENOL ATF Dexron F III**

GM-Specification: DEXRON® III F-30140

High performance semi synthetic transmission fluid for automatic gearboxes, hydraulic steering, power converters and transmissions.

MB 236.1, MB 236.5, MAN 339 Type V1, MAN 339 Type Z1, ZF TE-ML 02F, 03D, 04D, 14A, 17C, 05L, Ford Mercon M-940717, Voith, Nissan, Allison C4, Cat. T0-2

Art.-Nr.: 1213104

**RAVENOL ATF Dexron III H**

GM-Specification: DEXRON® III H, Allison C4

High performance semi synthetic universal ATF (Automatic-Transmission-Fluid) for automatic gearboxes with or without controlled torque converter lockup clutch (GKÜB = clutch gearbox bridging), if transmission fluids type DEXRON III H are required.

MAN 339 Type Z2, ZF TE-ML 04D, 14B, 05L, 16L, 17C, Voith 55.6336.3x Extended Drain (G1363), Allison C4-33072010 (ATF III H), Allison TES-389 AA-33072010 (ATF III H), MB 236.1, MB 236.6, MB 236.9, MB 236.10, VOLVO Transmission Oil 97341, VOLVO 1161521 and 1161621

Art.-Nr.: 1212100

**RAVENOL ATF Dexron II E**

GM-Specification: Dexron® II E

High performance fully synthetic ATF (Automatic-Transmission-Fluid) for automatic transmissions, torque converters and power shifts.

MB 236.8, MB 236.5, Voith 55.6336.3x Extended Drain (G1363), Allison C4-32652009 (ATF II E), MAN 339 Type Z2, MAN 339 Type V2, ZF TE-ML 04D, 09X, 14B, 16L, Cat. T0-2

Art.-Nr.: 1211103

**RAVENOL ATF DEXRON® VI**

GM-Specification: Dexron® VI

Synthetic ATF, approved by General Motors for use in vehicles with automatic transmissions.

Dexron®-VI (License-No. J-60331), GMN 10060, MB 236.41, BMW 83 22 0 397 114, GM1940184, GM93165414

Art.-Nr.: 1211105

**RAVENOL ATF MERCON V**

GM-Specification: MERCON® V

Universal ATF (Automatic-Transmission-Fluid) for FORD automatic transmissions.

MERCON® V (License-No. M5060502), Ford WSS-M2C202-B, Ford XT-5-QMC, XT-5-5QM, XT-5-DMC, Ford 8000045, Ford ATF E-M5, Ford 1565889, Ford 5014519

Art.-Nr.: 1212101

## Gear Oils for Manual Transmissions

Automotive gear lubricants, similar to engine oils, are classified by the API in terms of the performance required by a particular application. As in the case of engine oils, these classifications do not define or reflect oil viscosity. To completely specify a gear lubricant, both the API service designation and the SAE viscosity grade are required. Axle and transmission lubricant viscosities are defined separately in SAE J306 recommended practice. Multi-grade lubricants are normally used and each viscosity grade has distinct criteria for low and high-temperature performance.

**SAE Viscosityclass acc. to SAE J306**

| SAE-class     | Min. temperature at dynamic viscosity<br>150 Pa*s, °C | Kinematic viscosity at 100°C, mm <sup>2</sup> /s |      |
|---------------|-------------------------------------------------------|--------------------------------------------------|------|
|               |                                                       | Min                                              | Max  |
| <b>Winter</b> |                                                       |                                                  |      |
| 70W           | -55                                                   | 4.1                                              | –    |
| 75W           | -40                                                   | 4.1                                              | –    |
| 80W           | -26                                                   | 7.0                                              | –    |
| 85W           | -12                                                   | 11.0                                             | –    |
| <b>Summer</b> |                                                       |                                                  |      |
| 90            | –                                                     | 13.5                                             | 24.0 |
| 140           | –                                                     | 24.0                                             | 41.0 |
| 250           | –                                                     | 41.0                                             | –    |

**Requirements for Gear Oil:**

- ▶ Lubrication, shear stability of the lubricant, reliable wear protection for transmission components and gaskets, anti-foaming, temperature control, corrosion protection, load carrying capacity, prevention of pitting, dispersing power, insensitivity to seals, insensitivity to metals, miscibility with other lubricants.
- ▶ Switching and synchronization behaviour.
- ▶ Prevention of noise while idling and operation, low noise operation at high and low temperatures, speeds and loads.
- ▶ A means of extending service intervals of increasing demands on the lubricants, the oils, i.e. consistent functionality over the duration of use, high thermal and oxidative stability for long applicability and optimal conditions for reducing friction energy losses.
- ▶ Cold start. Wear-free starting behaviour at low temperatures.

In addition to the factory standards of the relevant motor vehicle industry, the guidelines for gear oils with the American Petroleum Institute (API) are relevant. However, the API classifications can only provide a rough classification, as the requirements are very complex to modern gear oils.

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GL-1</b> | <b>Inactive</b> <sup>1)</sup><br>designates the type of service characteristic of manual transmissions operating under such mild conditions of low unit pressures and minimum sliding velocities, that untreated oil may be used satisfactorily. Oxidation and rust inhibitors, defoamers and pour depressants may be used to improve the characteristics of lubricants intended for this service. Friction modifiers and extreme pressure additives shall not be used. |
| <b>GL-2</b> | <b>Inactive</b> <sup>1)</sup><br>designates the type of service characteristic of automotive type worm-gear axles operating under such conditions of load, temperature and sliding velocities, that lubricants satisfactory for API GL-1 service will not suffice.                                                                                                                                                                                                      |
| <b>GL-3</b> | <b>Inactive</b> <sup>1)</sup><br>designates the type of service characteristic of manual transmissions and spiral-bevel axles operating under mild to moderate to severe conditions of speed and load. These service conditions require a lubricant having load-carrying capacities greater than those that will satisfy APL GL-1 service, but below the requirements of lubricants satisfying the API GL-4 service.                                                    |
| <b>GL-4</b> | Designates the type of service characteristic of spiral-bevel and hypoid gears in automotive axles operated under moderate speeds and loads. These oils may be used in selected manual transmission and transaxle applications.                                                                                                                                                                                                                                         |
| <b>GI-5</b> | Designates the type of service characteristic of gears, particularly hypoids in automotive axles under high-speed and/or low-speed, high-torque conditions. Lubricants qualified under U.S. Military specification MIL-L-2105D (formerly MIL-L-2015C), MIL-PRF-2105E and SAE J2360 satisfy the requirements of the API GL-5 service designation.                                                                                                                        |
| <b>GL-6</b> | <b>Inactive</b> <sup>1)</sup><br>designates the type of service characteristic of gears designed with a very high pinion offset. Such designs typically require (gear) score protection in excess of that provided by API GL-5 gear oils. The original API GL-6 test equipment is obsolete.                                                                                                                                                                             |
| <b>MT-1</b> | designates lubricants intended for non-synchronized manual transmissions used in buses and heavy-duty trucks. Lubricants meeting API MT-1 provide protection against the combination of thermal degradation, component wear, and oil seal deterioration which is not provided by lubricants meeting only the requirements of API GL-4 and API GL-5.                                                                                                                     |

To ensure the function of the transmission over the entire duration of use requires special gear for the respective assemblies. So gear oils today are included as a design element in the development.

<sup>1)</sup> API Categories GL-1, GL-2, GL-3 and GL-6 were declared inactive by SAE Technical Committee 3 in 1995, even though oils may be marketed with these designations. Similarly, ASTM does not plan to maintain the performance tests associated with these categories, as in a number of cases these tests can no longer be run because parts or test installations are not available.



## Gear Oils for Manual Transmissions – Professional Line

Fully synthetic gear oils using sophisticated additives designed for use in the manual transmissions of a wide variety of vehicles.



### RAVENOL MTF-1

SAE 75W-85      API GL-4/GL-5

Fully synthetic gear oil based on PAO for specific switching, distribution and differential gears.

General Motors 1940182, 93740319, Hyundai 04300-00110, 04300-00140, 08950-00020-B, 08950-00020-A, MB 235.7 A 001 989 33 03, MB 235.4 A 001 989 14, OPEL B 040 2071, Mitsubishi 3717610, MTF BOT 402 BOT 0063 for F35/MU3 5-stroke SAAB/GM/Opel, Nissan KLD26-75802, KE91699931, KE91699942, 999MP-MTF00P, TOYOTA 08885-02606, 08885-81070, 08885-81060

Art.-Nr.: 1221102



### RAVENOL MTF-2

SAE 75W-80      API GL-4/MT-1

Fully synthetic gear oil based on PAO for modern manual transmissions.

AC Delco 10-4033, BMW 2300 7533 513 MTF LT-2, 83 22 0 309 031 2300 1434 404 MTF LT-1, FIAT 9.55550-MZ2 F178.B06 14621616, FORD WSS-M2C200-D2 WSS-M2C200-C3 1547953 1382914, General Motors 1940711, 88861800, 88861801, Honda 08261-99964 Genuine MTF Fluid 08798-9031 MTF-7289, Hyundai 02200-00130 TOD, Land Rover STC 9157 TYK500030 STC 9158, MB 235.10 A 001 989 26 03, Mitsubishi MZ312644 3005401, MTF-94 Fluid for Land Rover, MG and Mini Cooper, Nissan 999MP-MTF20P KE91699932R, Peugeot 9730A2, Subaru K0321-F0090, TOYOTA 08885-00705, VOLVO 1161681 1161745, VW/AUDI G 052911A2, G 055538A2 for ZF 6S450 Amarak OC6, MTF CT4447 M+, MTF ETL8997B

Art.-Nr.: 1221103



### RAVENOL MTF-3

SAE 75W

Fully synthetic gear oil for special manual transmissions.

BMW 2300 7533 818 MTF LT-3, 83 22 0 396 706, 83 22 7 533 818 MTF LT-3, MTF JWS2271, PSA Standard 9730A8, TOYOTA 08885-81001, 08885-81081, VOLVO 1161839, 1161838, VW/AUDI G 060726A2, G 052171A2, VW G 070 726 A2, FORD WSS-M2C200-D2

Art.-Nr.: 1221104

## Gear Oils for Manual Transmissions

Our classics for the lubrication of gear boxes, drive axles and a wide range of transmissions, also those fitted with a Limited Slip (LS) function. Specially selected additive formulations ensure proper functioning of the units.



### RAVENOL MDL Multi-Disc locking differentials

Semi-synthetic lubricant for clutch-type lamella limited slip differentials.

AcDelco 10-4032, Daimler A 0019895903 for Mercedes-Benz M-Class (W164, X164) GM 92184900, Land Rover LR019727, BOT 720, TYK500070, Porsche 000.043.300.37 for Porsche Cayenne, Porsche Panamera, VW G052196A2 for VW Touareg

Art.-Nr.: 1222103



### RAVENOL STF Synchronmesh Transmission Fluid

Fully synthetic gear oil for manual transmissions and transfer boxes from GM and Chrysler.

Chrysler MS-9417, MS-9224, 4874465, 4874464, General Motors 12345349, 9985648, 1052931, 12377916, 9985535, 12345577, 9986105

Art.-Nr.: 1221105



### RAVENOL Truck MTF-50

Fully synthetic heavy duty manual transmission oil requiring a non-EP lubricant.

API MT-1, EATON PS-164 Rev. 7, MACK TO-A PLUS, International TMS-6816, ZF FreedomLine, TE-ML 02L, ArvinMeritor O-81

Art.-Nr.: 1221106



### RAVENOL VSG

SAE 75W-90      API GL-5/GL-4      MIL-L-2105D

Fully synthetic gear oil for use in heavily loaded transmissions.

MB 235.8, MB 235.11, MAN 342 Type S-1, ZF TE-ML 12B, 16F, 17B, SCANIA STO 1:0, Renault LKW, DAF LKW (for extended drain), VOLVO 97312 / 97315, IVECO, BOT 328, 130M, 720, BMW 83229407768, BMW OSP, BMW SAF-XO

Art.-Nr.: 1221101





**RAVENOL SSG Spec Synt LKW Getriebeöl**

SAE 75W-80      API GL-4      MIL-L-2105D

Fully synthetic low friction gear oil especially for high stressed gears. For synchronized truck manual transmissions with interarder or retarder. Extreme oil change intervals to 500.000 km.

ZF TE-ML 01L, 02L, 16K, MAN 341 Type Z4, MAN 341 Type E3, MAN 341 Type V-R, DAF/VOLVO 97305, 97307, EATON (Extended drain)/IVECO/RENAULT

Art.-Nr.: 1221100



**RAVENOL PSA**

SAE 75W-80      API GL-4+

Semi synthetic gear oil especially developed for Citroën and Peugeot vehicles.

PSA Standard B 71 2315

Art.-Nr.: 1222100



**RAVENOL Getriebeöl SLG**

SAE 80W-90      API GL-4/GL-5/MT-1      MIL-L-2105A/B/C/D/E

High performance multifunction gear oil for truck manual transmissions, auxiliary drives an rear axles, including highly stressed hypoid drive axles.

MAN 341 Type E2, MAN 3343 Type M (extended oil change intervals), SCANIA STO 1:0, ZF TE-ML 02B, 05A, 12E, 16B, 17B,19B, 21A, VOLVO 97310

Art.-Nr.: 1223305



**RAVENOL TDG**

SAE 75W-110      API GL-4, GL-5, MT-1      MIL-L-2105D, MIL-PRF-2105E

Universal fully synthetic gear oil for manual transmissions and hypoid differentials in passenger cars, delivery vans and heavy truck. "Total Drive Line" oil is as universal product widely usable.

ZF TE-ML 05B, 12B, 16F, 19C, 21B, MACK G0-J, DAF, Scania STO 1:0

Art.-Nr.: 1221109



**RAVENOL Teilsynthetisches Getriebeöl TSG**

SAE 75W-90      API GL-4

Semi synthetic multipurpose gear oil for high loaded manual transmissions with or without synchronization, distributors and steering transmission for passenger cars and working machines.

VW 501 50, Ford M2C-175, GM Opel B 040 104 3

Art.-Nr.: 1222101



**RAVENOL Getriebeöl SLS**

SAE 75W-140      API GL-5 + LS      MIL-L-2105D

Fully synthetic multigrade hypoid gear oil for highest stressed rear axle and differential gears with "Limited Slip" specification.

Limited Slip

Art.-Nr.: 1221110



**RAVENOL TGO Teilsynthetisches Getriebeöl**

SAE 75W-90      API GL-5      MIL-L-2105D

Semi synthetic gear oil especially for highest stressed hypoid geared transmissions.

ZF TE-ML 05A, 07A, 17B, CS 3000B, Ford M2C-9002A, Mack G0-G, GM, MB 235.0, MB 235.1

Art.-Nr.: 1222105



**RAVENOL Sperrdiff. Hypoid Getriebeöl LS**

SAE 85W-90      API GL-5 + LS      MIL-L-2105D

Mineral gear oil for Limited Slip (LS) and locking type differentials.

ZF TE-ML 05C, 12C, 16E, Ford Specification, Limited Slip

Art.-Nr.: 1223301



**RAVENOL Getriebeöl LS**

SAE 75W-90      API GL-5 + LS      MIL-L-2105D

Semi-synthetic gear oil for Limited Slip (LS) type differentials.

ZF TE-ML 05C/D, Limited Slip

Art.-Nr.: 1222102



**RAVENOL Sperrdiff. Hypoid Getriebeöl LS**

SAE 90      API GL-5 + LS      MIL-L-2105D

Mineral gear oil for Limited Slip (LS) and locking type differentials.

ZF TE-ML 05C, 12C, 16E, 21C, Ford Specification, Limited Slip

Art.-Nr.: 1223302





**RAVENOL Getriebeöl EPX**

SAE 80, SAE 90    API GL-5    MIL-L-2105D

Mineral gear oil for synchromesh and non-synchronized manual transmissions and hypoid differentials, as well as for power distributors and intermediate gear, side gears in vehicles and machinery

MB 235.0, MAN 342 Type M1, ZF TE-ML 05A, 07A, 16B, 16C, 16D, 17B, Ford SQM-2C-9002AA

Art.-Nr.: 1223201 SAE 80

Art.-Nr.: 1223202 SAE 90



**RAVENOL Getriebeöl MZG**

SAE 80    API GL-4    MIL-L-2105D

Mineral multifunction gear oil for lubricating of manual transmissions, differentials and steering transmissions in passenger cars.

MAN 341 Type Z1, MAN 341 Type E1, ZF TE-ML 02A, 17A, MB 235.1, Ford SQM-2C-9008A

Art.-Nr.: 1223101



**RAVENOL Getriebeöl EPX**

SAE 80W-90    API GL-5    MIL-L-2105D

Mineral multigrade gear oil for synchromesh and non-synchronized manual transmissions and hypoid differentials, as well as for power distributors and intermediate gear, side gears in vehicles and machinery.

ZF TE-ML 16B, 17B, 19B, 21A, LOVAT LOV-204, MB 235.0, MAN 342 Type M1, Ford SQM-2C-9002 AA

Art.-Nr.: 1223205



**RAVENOL Getriebeöl MZG**

SAE 80W-90    API GL-4    MIL-L-2105D

Mineral multifunction gear oil for lubricating of manual transmissions, differentials and steering transmissions in passenger cars.

MAN 341 Type Z1, MAN 341 Type E1, ZF TE-ML 02B, 16A, 17A, 19A, MB 235.1, Ford SQM-2C-9008A

Art.-Nr.: 1223105



**RAVENOL Getriebeöl EPX**

SAE 85W-90    API GL-5    MIL-L-2105D

Mineral multigrade gear oil for synchromesh and non-synchronized manual transmission, as well as for power distributors and intermediate gear, side gear in vehicles and machinery.

ZF TE-ML 05A, 16B, 17B, 19B, MAN 342 Type M1, MB 235.0, Ford SQM-2C-9002 AA

Art.-Nr.: 1223206



**RAVENOL Getriebeöl MZG**

SAE 90    API GL-4    MIL-L-2105D

Mineral multifunction gear oil for lubricating of manual transmissions, differentials and steering transmissions in passenger cars.

MAN 341 Type Z1, MAN 341 Type E1, ZF TE-ML 02A, 16A, 17A, MB 235.1, Ford SQM-2C-9008A

Art.-Nr.: 1223102



**RAVENOL Getriebeöl EPX**

SAE 85W-140    API GL-5    MIL-L-2105D

Mineral multigrade gear oil for synchromesh and non-synchronized manual transmission, as well as for power distributors and intermediate gear, side gear in vehicles and machinery.

ZF TE-ML 05A, 16D, 21A, Ford M2C-9002A, MAN 342 Type M1, CS 3000B, Mack G0-G, GM

Art.-Nr.: 1223211



**RAVENOL Getriebeöl EPX**

SAE 140    API GL-4/GL-5    MIL-L-2105D

Mineral gear oil for synchromesh and non-synchronized manual transmissions and hypoid differentials, as well as for power distributors and intermediate gear, side gears in vehicles and machinery

ZF TE-ML 05A, 07A, 17B, CS 3000B, Ford M2C-9002A, Mack G0-G, GM

Art.-Nr.: 1223210



## Car Care Products

The addition of an extensive range of car care products is the best way to complete our offer. Here you can find high-quality cleaners and car care products that have been carefully researched and developed to extend the life of your automobile, motorcycle or boat.



### **RAVENOL Hochdruckreiniger Super Konzentrat**

Effective super concentrate for universal cleaning in 10% mixture. Use in pressure washers, according to manufacturer's recommendations.

Kärcher, Lavor, Nilfisk Alto, Portotecnica, Kränzle, Delvir, Comet.

Art.-Nr.: 1360006



### **RAVENOL Hochdruckreiniger-Konzentrat**

Ready to use concentrate for use in pressure washers, according to manufacturer's recommendations. Also for cleaning vehicles and planes in the commercial sector.

Kärcher, Lavor, Nilfisk Alto, Portotecnica, Kränzle, Delvir, Comet.

Art.-Nr.: 1360003



### **RAVENOL Kaltreiniger**

Cleaner for all kind of engines, mechanical parts etc.. Removes all traces of oil, fats, fuel, clutch and brake abrasion.

Art.-Nr.: 1360001





### RAVENOL Kaltreiniger lösemittelfrei

Cleaner for all kind of engines, mechanical parts. It quickly penetrates grease, dirt, oil and grime and swiftly removes contaminants. Does not contain solvents.

Art.-Nr.: 1360002



### RAVENOL Glasklar

Intensive glass cleaner, ideal for all glass and mirrored surfaces both inside and outside. It easily and quickly removes traffic film, dust, dirt, fingerprints, greasy marks and nicotine haze from windows and mirrors and leaves a sparkling, smear-free finish. Also suitable for use in the home on windows, mirrors and tiled surfaces.

Art.-Nr.: 1360025



### RAVENOL Nitro-Universal-Verdünnung

Application to dilute nitro, nitro-combination, chlorinated rubber, air-drying and oven-drying synthetic enamel, as well as air-and oven-drying cellulose lacquer.

Art.-Nr.: 1360127



### RAVENOL Bremsenreiniger (flüssig and Spray)

A highly effective solvent-blended brake cleaner aerosol for the degreasing and cleaning of brakes, brake linings and clutch parts. Also suitable for the cleaning of electric motors, generators, hydraulic parts and many other metal components. Used by many Motorsport Teams – said to leave no white film after use.

Art.-Nr.: 1360030



### RAVENOL Teerentferner

Cleaner of tar, fats, light oxidation and stains from car lacquer.

Art.-Nr.: 1360004



### RAVENOL Rostlöser MoS2 Spray

Contains finely dispersed Molybdenum Disulfide solid lubricant for outstanding water displacement, corrosion inhibition and lubricating properties. Relaxes and loosens seized screw connections, displaces water and moisture from ignition contacts and electrical systems. The penetrating nature effectively prevents squeaks and creaks in all types of moving parts.

Art.-Nr.: 1360009



### RAVENOL Autoshampoo

Universal concentrated liquid detergent excellent for thoroughly cleaning cars.

Art.-Nr.: 1360005



### RAVENOL Cockpit-Spray

A highly effective silicon-free care spray for the cleaning and maintenance of plastic, artificial and natural leather interior surfaces of all types of motor vehicles.

Art.-Nr.: 1360031



### RAVENOL destilliertes Wasser

Special water for antifreeze dilution and use in accumulators.

Art.-Nr.: 1360010



### RAVENOL Ketten-Spray

A spray lubricant and corrosion protection for all types of high-speed chains. Formulated to effectively penetrate all gaps and dry quickly to provide a stable, odorless lubricating film with high levels of adhesion and water resistance.

Art.-Nr.: 1360032





### RAVENOL Silikon-Spray

A universal lubricant and slide release agent spray for use on all types of components. Specially developed for the lubrication, care and maintenance of all types of rubber, plastic and metal surfaces and components. The water-resistant and weatherproofing properties make it especially suitable in a marine environment.

Art.-Nr.: 1360033



### RAVENOL Motorstarter-Spray

A mixture of combustible solvents and compressed gases formulated to make it suitable for use in all petrol and diesel engines in passenger cars, trucks, construction equipment, all types of marine and boat engines, as well as agricultural equipment.

Art.-Nr.: 1360034



### RAVENOL Zweirad-Reiniger

Cleaner of metal and plastic surfaces of motorcycles, mopeds and bikes.

Art.-Nr.: 1360058



### RAVENOL Insekten-Entferner

A very high quality spray cleaner for the safe and easy removal of bug and insect contamination on glass, paint, chrome and plastic surfaces. Penetrating formula works even on dried insect residue without damaging paintwork - ideal for use as a pre-wash treatment.

Art.-Nr.: 1360059



### RAVENOL Alu-Felgen-Reiniger intensiv

A very high quality, phosphate-free alloy wheel cleaner formulated to remove the toughest deposits of brake dust, traffic film, greasy marks and road dirt from alloy wheels and rims, steel wheels, plastic wheel covers as well as engine components etc.

Art.-Nr.: 1360060



### RAVENOL Velour-Reiniger

High quality, phosphate-free car upholstery cleaner for the effective cleaning of all types of seat fabrics and covers, carpets and floor mats. It is also safe and suitable for use on all types of interior trim and all interior plastic surfaces in the car.

Art.-Nr.: 1360066



### RAVENOL Leder-Reiniger

A phosphate-free, high quality cleaning agent for all types of leather seats and interior trims in the car. Helps to maintain the suppleness and smoothness of the leather.

Art.-Nr.: 1360067



### RAVENOL Bootsreiniger

Special cleaner for yachts, boats and watercrafts. Highly effective in removing dirt, oil, grease, soot, nicotine, algae, tree sap, etc. without attacking the surface.

Art.-Nr.: 1360068



### RAVENOL Sommerscheiben-Reiniger

Windshield washer for summer period.

Art.-Nr.: 1360080



### RAVENOL Natur-Petroleum

Fluid for kerosene/oil lamp.

Art.-Nr.: 1350110





**RAVENOL Handreiniger-Paste**

Hand cleaner paste. Effective against heavily soiled hands.

Art.-Nr.: 1360600



**RAVENOL Autopolitur**

Provides a high-gloss Teflon finish for car, boat and caravan. Suitable for all types of automotive coatings as well as for the chrome, wheels and wheel cleaning. Removes tar, insects, and oxidation and brings the shine back to old paint.

Art.-Nr.: 1360750



**RAVENOL Ölfasspumpe**

Dispensing telescopic oil hand pump. Fits most drum sizes from 60 L – 208 L.

Art.-Nr.: 1370190



**RAVENOL Fettpresse**

Hand operated lever cartridge pump for greases with armor tube.

Art.-Nr.: 1370040



**RAVENOL Messkanne 2 L**

Jug cap with measuring bar 2 L.

Art.-Nr.: 1370054

**Greases**

Lubricating greases can be defined as solid to semi-fluid products of the dispersion of a thickening agent in a liquid lubricant:

Commodity greases, usually based on lithium, calcium or sodium soaps (including some EP and lithium complex products) are general-purpose, low-cost products produced in large volumes.

High-specification greases, often based on a complex soap, are frequently manufactured with highly refined or synthetic base oils for more demanding applications than can be met with commodity grease products.

► Nowadays the performance of greases is described by norms such as DIN 51 502 in Europe and ISO. Ravensberger Schmierstoffvertrieb GmbH marks its greases according to DIN 51 502. RAVENOL greases are used for permanent lubrication of rolling and plain bearings, sliding surfaces, gears/tooth segments, belt automatics and hinges.

**DIN 51 502 DESIGNATIONS for greases:**

| Grease application      |                                                              |
|-------------------------|--------------------------------------------------------------|
| K                       | for bearings and sliding surfaces according to DIN 51 825    |
| G                       | for enclosed gears according DIN 51 826, OG – for open gears |
| M                       | plain bearings and seals                                     |
| Base oils and additives |                                                              |
| P                       | EP-additives                                                 |
| F                       | solid additives (graphite, molybdenum disulfide, etc)        |
| E                       | polyester                                                    |
| FK                      | perfluorochemical fluid                                      |
| HC                      | synthetic-hydrocarbons                                       |
| PH                      | phosphoric acid ester                                        |
| PG                      | polyglycol                                                   |
| SI                      | silicon oil                                                  |
| X                       | others                                                       |

**MAX. TEMPERATURE AND WATER STABILITY**

| Additional class | upper application – temperature in °C | Behaviour of greases in the presence of water according DIN 51 807 at a temp. of |        |
|------------------|---------------------------------------|----------------------------------------------------------------------------------|--------|
|                  |                                       | 40 °C                                                                            | 90 °C  |
| C                | 60                                    | 0 or 1                                                                           |        |
| D                | 60                                    | 2 or 3                                                                           |        |
| E                | 80                                    | 0 or 1                                                                           |        |
| F                | 80                                    | 2 or 3                                                                           |        |
| G                | 100                                   |                                                                                  | 0 or 1 |
| H                | 100                                   |                                                                                  | 2 or 3 |
| K                | 120                                   |                                                                                  | 0 or 1 |
| M                | 120                                   |                                                                                  | 2 or 3 |
| N                | 140                                   |                                                                                  |        |
| P                | 160                                   |                                                                                  |        |
| R                | 180                                   |                                                                                  |        |
| S                | 200                                   |                                                                                  |        |
| T                | 220                                   |                                                                                  |        |
| U                | over 220                              |                                                                                  |        |

0 – indelible  
1 – weakly washing-out  
2 – average washing-out  
3 – strong washing-out

**Classifications of greases by NLGI numbers**

| NLGI-class | Appearance      | worked penetration in 0,1 mm DIN ISO 2137 | Application                                |
|------------|-----------------|-------------------------------------------|--------------------------------------------|
| 000        | fluid           | 445/475                                   | Centralized grease system and gear greases |
| 00         | semi-fluid      | 400/430                                   |                                            |
| 0          | very soft       | 355/385                                   | Greases for bearings                       |
| 1          | soft            | 310/340                                   |                                            |
| 2          | “normal” grease | 265/295                                   |                                            |
| 3          | firm            | 220/250                                   |                                            |
| 4          | very firm       | 175/205                                   | Block greases                              |
| 5          | hard            | 130/160                                   |                                            |
| 6          | very hard       | 85/115                                    |                                            |

NATIONAL LUBRICATING GREASE INSTITUTE (NLGI) - Classification  
NLGI 00 and 000 – semi-fluids for centralized grease systems

NLGI 1 – used in winter  
NLGI 2 – multi-purpose  
NLGI 3 – used in summer





### RAVENOL Mehrzweckfett OML

NLGI 2 Specification nach DIN 51 502: K2K-30

Lithium saponified multipurpose grease for the lubrication of lightly loaded bearings and all machine parts.

MB 267.0, ISO 6743: ISO-L-XCCEA2



Art.-Nr.: 1340101

### RAVENOL Mehrzweckfett mit Graphit

NLGI 2 Specification nach DIN 51 502: KPF2K-30

Lithium saponified multipurpose grease with finely divided graphite to increase the loading at very high temperatures. Designed for applications exposed to high temperatures and shock loadings.

ISO 6743: ISO-L-XCCFB2



Art.-Nr.: 1340102

### RAVENOL Mehrzweckfett mit MoS2

NLGI 2 Specification nach DIN 51 502: KPF2K-30

Lithium saponified grease with molybdenum sulfide MoS2 for lubricating hard to reach places, and reciprocating machine parts for chassis lubrication. Salt water resistant.

ISO 6743: ISO-L-XCCIB2



Art.-Nr.: 1340103

### RAVENOL Super EP-Langzeitfett

NLGI 2 Specification nach DIN 51 502: KP2K-30

Lithium saponified grease for long-term lubrication of heavily loaded plain and rolling bearings, even under the influence of moisture, vibration and shock loads.

ISO 6743: ISO-L-XCCFB2, LOVAT LOV-204



Art.-Nr.: 1340104

### RAVENOL LKW FETT BLAU

NLGI 2 Specification nach DIN 51 502: KP2N-30

Blue colored lithium saponified multipurpose grease based on mineral oil for the lubrication of heavily loaded plain and rolling bearings of trucks and construction equipment, even under the influence of moisture, vibration and shock loads.

ISO 6743: ISO-L-XCDIB2, VOLVO STD "Lubricating grease 97720", MAN 283 Li-P2, MB 267.0



Art.-Nr.: 1340117





### RAVENOL Wälzlagerfett LI-86

NLGI 3 Specification to DIN 51 502: K3K-30

Lithium saponified bearing grease for the lubrication of high-speed roller and ball bearings. Especially for chassis lubrication, lubrication of construction equipment and agricultural equipment. Highly resistant to dirt and water.

ISO 6743: ISO-L-XCCFA3

Art.-Nr.: 1340105



### RAVENOL Polfett-Säureschutzfett

NLGI 2 Specification to DIN 51 502: K2K-30

Lithium saponified multi-purpose grease to protect contacts and metal parts from aggressive acids.

ISO 6743: ISO-L-XCCEA2

Art.-Nr.: 1340115



### RAVENOL Amber Getriebefließfett

NLGI 0 Specification to DIN 51 502: GPOK-30

Lithium saponified multipurpose grease for the lubrication of heavily loaded trucks and trailers, roller and ball bearings in the industrial sector at low speeds.

ISO 6743: ISO-L-XCCFBO

Art.-Nr.: 1340106



### RAVENOL Hochleistungsfett mit MoS2

NLGI 2 Specification to DIN 51 502: KPF2K-30

Lithium saponified grease with high performance molybdenum sulphide for lubricating reciprocating machine parts and constant velocity joints. Salt water resistant.

ISO 6743: ISO-L-XCIB2

Art.-Nr.: 1340108



### RAVENOL KFZ-Fließfett ZSA

NLGI 00 Specification to DIN 51 502: GPOOK-30

Lithium soap EP grease for central lubrication systems mobile. It is recommended for FF VOGEL central lubrication systems ZSA, Mercedes-Benz and MAN.

ISO 6743: ISO-L-XCCEB00, MAN 283 Li-P 00/000, MB 264.0, Willi Vogel

Art.-Nr.: 1340107



### RAVENOL Kupferpaste

NLGI 1-2 Specification to DIN 51 502: KF1,5U-20

Lithium saponified grease with copper powder as a solid lubricant additive for the lubrication of screw and bushings in drill pipes.

ISO 6743: ISO-L-XBGE1-2, Operational temperature range -20°C to +1100°C

Art.-Nr.: 1340109



### RAVENOL Kettenfließfett

NLGI 0 Specification to DIN 51 502: GPOK-30

Lithium saponified multipurpose grease for the lubrication of chains.

ISO 6743: ISO-L-XCCFBO

Art.-Nr.: 1340114



### RAVENOL Extreme Pressure Grease EPG 3

NLGI 3 Specification to DIN 51 502: KP3K-30

Lithium saponified universal high-performance grease for industrial and automotive applications. Used as a lubricant and bearing grease to lubrication points of motor vehicles, equipment, machinery, conveyor systems, construction equipment, etc..

ISO 6743: ISO-L-XCCEB3

Art.-Nr.: 1340127



### RAVENOL Kugellager-Vaselinfett

NLGI 2 Specification to DIN 51 502: K2K-30

Lithium saponified multipurpose grease for the lubrication of ball bearings.

ISO 6743: ISO-L-XCCEA2

Art.-Nr.: 1340113



### RAVENOL Hot Red Grease HRG 1

NLGI 1 Specification to DIN 51 502: KP1P-35

Red colored lithium saponified universal high-performance grease for industrial and automotive applications. Used as a lubricant and bearing grease to lubrication points of motor vehicles, equipment, machinery, conveyor systems, construction equipment, etc..

ISO 6743: ISO-L-XCEEB1

Art.-Nr.: 1340120



**RAVENOL Hot Red Grease HRG 2**

NLGI 2 Specification to DIN 51 502: KP2P-35

Red colored lithium saponified high performance grease for the lubrication of high pressure loaded roller and plain bearings at elevated storage temperatures. Use for the wheel bearing lubrication of commercial vehicles and for high-speed passenger car wheel bearings.

ISO 6743: ISO-L-XCEEB2

Art.-Nr.: 1340121

**RAVENOL Hot Red Grease HRG 3**

NLGI 3 Specification to DIN 51 502: KP3P-25

Red colored lithium saponified high performance grease for the lubrication of high pressure loaded roller and plain bearings at elevated storage temperatures. Use for the wheel bearing lubrication of commercial vehicles and for high-speed passenger car wheel bearings.

ISO 6743: ISO-L-XBEEB3

Art.-Nr.: 1340122

**RAVENOL Arctic Green Grease AGG 2**

NLGI 2 Specification to DIN 51 502: KPE2K-60

Green colored lithium saponified high performance grease based on synthetic/native esters, synth. Hydrocarbons and high quality mineral oils. Suitable for the lubrication of high pressure loaded roller and plain bearings at very low temperatures.

ISO 6743: ISO-L-XECEB2

Art.-Nr.: 1340126

**RAVENOL Arctic Tripoid Grease ATG 2**

NLGI 2 Specification to DIN 51 502: KPFE2K-60

Lithium saponified high performance grease with molybden disulfide MoS<sub>2</sub> based on synthetic/native esters, synth. Hydrocarbons and high quality mineral oils. Suitable for the lubrication of high pressure loaded roller and plain bearings at very low temperatures.

ISO 6743: ISO-L-XECEB2

Art.-Nr.: 1340125

**RAVENOL Marinefett**

NLGI 2 Specification to DIN 51 502: KP2K-30

Yellow-green, fluorescent, sea-water resistant lubrication grease with long-term adhesion properties. It is based on a special, calcium soap and high-viscous synthetic base oil, as well as specifically selected active ingredients to protect against oxidation, rust and corrosion.

ISO 6743: ISO-L-XCCFB2

Art.-Nr.: 1340128



# Coolants

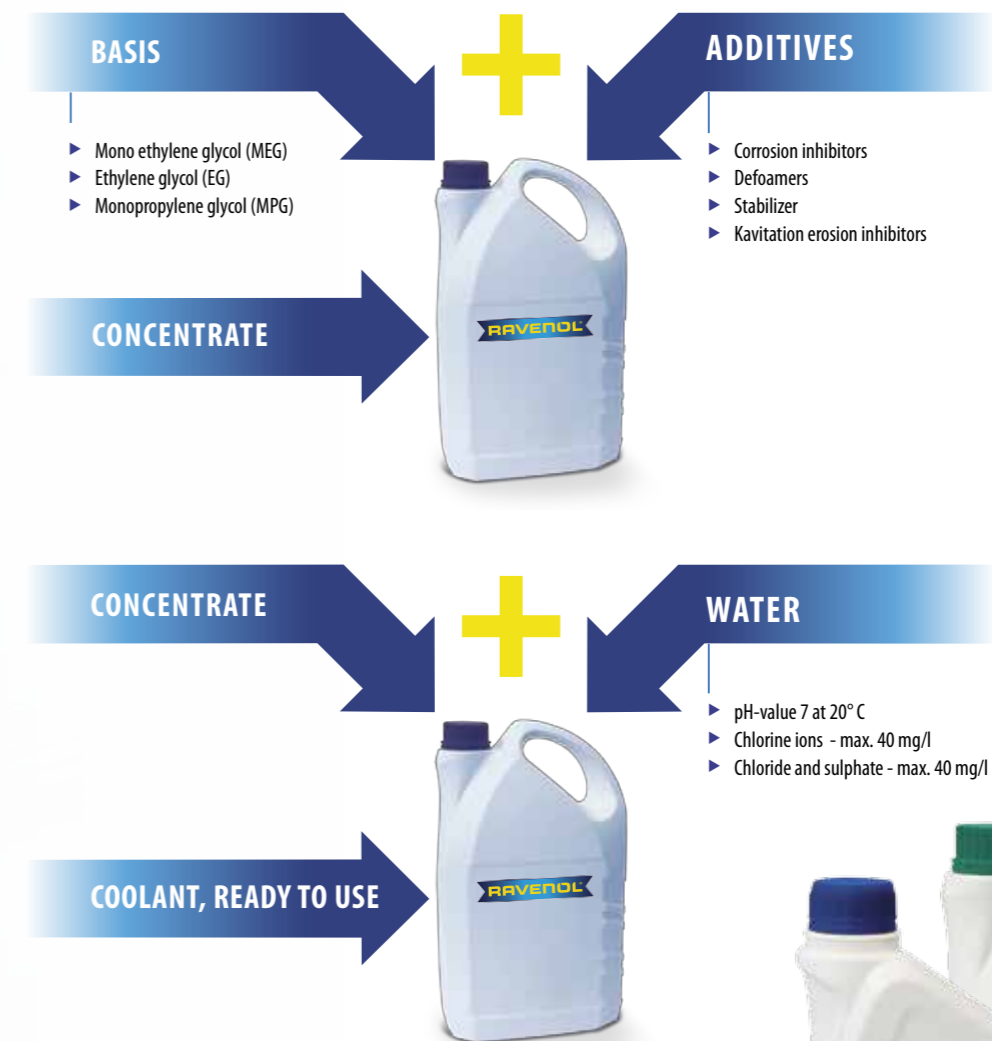
Modern engine coolants are more than just antifreeze.

**RAVENOL Antifreeze is a cooling and antifreeze agent based on mono ethylene glycol (MEG), that has been produced to correspond with the newest water cooled motors, and to which a special additive package has been added to guarantee a year-round faultless functioning of your engine.**

To ensure good corrosion protection it is recommended to use at least 33 vol. % of RAVENOL Antifreeze in the coolant solution. This provides frost protection to -20°C. Typical mixtures in Northern Europe are 50/50 Antifreeze/Water, offering frost protection down to -36°C.

**Features:**

- ▶ providing a high degree of corrosion protection for radiator and all engine cooling systems
- ▶ year round use to provide protection against freezing, overheating and corrosion
- ▶ suitable for use in both petrol and diesel engines
- ▶ good compatibility with elastomers
- ▶ excellent heat transfer performance
- ▶ extended life for the coolant
- ▶ contains no nitrite, amine or phosphate



For coolants there exist no general standard specifications like API or ACEA for motor oils.

RAVENOL Coolants can be mixed only with RAVENOL destil- liertes Wasser entionisiert. It meets all specifications concern- ing the stability with hard water. Mixing with ordinary tap water may cause metal corrosion. RAVENOL Antifreeze does not have any negative influence on the rubber parts of the cooling system.







### RAVENOL TTC Traditional Technology Coolant Concentrate PROTECT C11

Coolant of yellow-green colour. It provides effective frost and corrosion protection. Application according mixture table.

VW TL 774-C (acc. to G11 quality), ASTM D 3306 (USA), BS 6580 (GB), O Norm V 5123 (Austria) JIS K 2234 (Japan), CUNA NC 956-16 (Italy), AFNOR R15-601 (France), SAE J1034, UNE 25-361 (Spain), ASTM D 6210, ASTM D 4985, ASTM D 3306, ASTM D 1384, ASTM D 2570, ASTM D 2809, FORD WSS-M97B51-A, FIAT PARAFU 11, IVECO 18-1830, CHRYSLER MS 7170

Art.-Nr.: 1410100



### RAVENOL OTC Organic Technology Coolant Premix -40°C PROTECT C12+

Coolant of lilac colour with frost and corrosion protection premixed to -40°C.

MAN 324 SNF, MB 325.3, VW/Audi TL 774-D/F (acc. to G12 plus quality), Opel GM 6277M, Opel GM B 040 1065, Ford WSS-M 97 B44D (from model year 1999), FORD 1336797, 1336807, 1365305, Porsche, Mitsubishi 0103044, 0103045, MZ311986, Toyota 08889-00115, 08889-01005, 08889-80014, 08889-80015, 00272-1LLAC, VOLVO 9437650, 9437651, VW G012A8GM1, G012A8FM8.

Art.-Nr.: 1410112



### RAVENOL TTC Traditional Technology Coolant Premix -40°C PROTECT C11

Coolant of yellow-green colour with frost and corrosion protection premixed to -40°C.

VW TL 774-C (acc. to G11 quality), ASTM D 3306 (USA), BS 6580 (GB), O Norm V 5123 (Austria) JIS K 2234 (Japan), CUNA NC 956-16 (Italy), AFNOR R15-601 (France), SAE J1034, UNE 25-361 (Spain), ASTM D 6210, ASTM D 4985, ASTM D 3306, ASTM D 1384, ASTM D 2570, ASTM D 2809, FORD WSS-M97B51-A, FIAT 9.55523, FIAT PARAFU 11, IVECO 18-1830, CHRYSLER MS 7170

Art.-Nr.: 1410105



### RAVENOL OTC Organic Technology Coolant Hot Climate -15°C PROTECT C12+

Coolant of lilac colour with frost and corrosion protection premixed to -15°C.

MAN 324 SNF, MB 325.3, VW/Audi TL 774-D/F (acc. to G12 plus quality), Opel GM 6277M, Opel GM B 040 1065, Ford WSS-M 97 B44D (from model year 1999), FORD 1336797, 1336807, 1365305, Porsche, Mitsubishi 0103044, 0103045, MZ311986, Toyota 08889-00115, 08889-01005, 08889-80014, 08889-80015, 00272-1LLAC, VOLVO 9437650, 9437651, VW G012A8GM1, G012A8FM8.

Art.-Nr.: 1410113



### RRAVENOL TTC Traditional Technology Coolant Hot Climate -15°C PROTECT C11

Coolant of yellow-green colour with frost and corrosion protection premixed to -15°C.

VW TL 774-C (acc. to G11 quality), ASTM D 3306 (USA), BS 6580 (GB), O Norm V 5123 (Austria) JIS K 2234 (Japan), CUNA NC 956-16 (Italy), AFNOR R15-601 (France), SAE J1034, UNE 25-361 (Spain), ASTM D 6210, ASTM D 4985, ASTM D 3306, ASTM D 1384, ASTM D 2570, ASTM D 2809, FORD WSS-M97B51-A, FIAT 9.55523, FIAT PARAFU 11, IVECO 18-1830, CHRYSLER MS 7170

Art.-Nr.: 1410106



### RAVENOL HTC Hybrid Technology Coolant Concentrate PROTECT MB 325.0

All year-round coolant of blue colour. It provides highly effective frost and corrosion protection for Mercedes, BMW, Opel, Saab and General Motors engines. Application according mixture table.

MB 325.0, MB A000989082510, VW TL 774-C, ASTM D3306, ASTM D4985, ASTM D4340, SAE J1034, NATO S-759, FORD ESE-M978B4H-A, FORD AF Plus, MAN 324, SAAB, GM 1825M, OPEL-GM QL130100, DAF, GM 1899M, GM 93740141, GM 93740140, VW-AUDI-PORSCHE, GM SATURN, ROVER, PORSCHE, John Deere, JAGUAR, BMW 81 22 9 407 454, 83 19 2 211 191, RENAULT, Honda 0L999-9011

Art.-Nr.: 1410120



### RAVENOL TTC Traditional Technology Coolant COLD CLIMATE -60°C PROTECT C11

Coolant of yellow-green colour with frost and corrosion protection premixed to -60°C.

VW TL 774-C (acc. to G11 quality), ASTM D 3306 (USA), BS 6580 (GB), O Norm V 5123 (Austria) JIS K 2234 (Japan), CUNA NC 956-16 (Italy), AFNOR R15-601 (France), SAE J1034, UNE 25-361 (Spain), ASTM D 6210, ASTM D 4985, ASTM D 3306, ASTM D 1384, ASTM D 2570, ASTM D 2809, FORD WSS-M97B51-A, FIAT 9.55523, FIAT PARAFU 11, IVECO 18-1830, CHRYSLER MS 7170

Art.-Nr.: 1410140



### RAVENOL HTC Hybrid Technology Coolant Premix -40°C PROTECT MB 325.0

All year-round coolant of blue colour with frost and corrosion protection premixed to -40°C.

MB 325.0, MB A000989082510, VW TL 774-C, ASTM D3306, ASTM D4985, ASTM D4340, SAE J1034, NATO S-759, FORD ESE-M978B4H-A, FORD AF Plus, MAN 324, SAAB, GM 1825M, OPEL-GM QL130100, DAF, GM 1899M, GM 93740141, GM 93740140, VW-AUDI-PORSCHE, GM SATURN, ROVER, PORSCHE, John Deere, JAGUAR, BMW 81 22 9 407 454, 83 19 2 211 191, RENAULT, Honda 0L999-9011

Art.-Nr.: 1410121



### RAVENOL OTC Organic Technology Coolant Concentrate PROTECT C12+

Coolant of lilac colour. It provides highly effective frost and corrosion protection. Application according mixture table.

MAN 324 SNF, MB 325.3, VW/Audi TL 774-D/F (acc. to G12 plus quality), Opel GM 6277M, Opel GM B 040 1065, Ford WSS-M 97 B44D (from model year 1999), FORD 1336797, 1336807, 1365305, Porsche, Mitsubishi 0103044, 0103045, MZ311986, Toyota 08889-00115, 08889-01005, 08889-80014, 08889-80015, 00272-1LLAC, VOLVO 9437650, 9437651, VW G012A8GM1, G012A8FM8, G012A8FM9

Art.-Nr.: 1410110



### RAVENOL HTC Hybrid Technology Coolant Hot Climate -15°C PROTECT MB 325.0

All year-round coolant of blue colour with frost and corrosion protection premixed to -15°C.

MB 325.0, MB A000989082510, VW TL 774-C, ASTM D3306, ASTM D4985, ASTM D4340, SAE J1034, NATO S-759, FORD ESE-M978B4H-A, FORD AF Plus, MAN 324, SAAB, GM 1825M, OPEL-GM QL130100, DAF, GM 1899M, GM 93740141, GM 93740140, VW-AUDI-PORSCHE, GM SATURN, ROVER, PORSCHE, John Deere, JAGUAR, BMW 81 22 9 407 454, 83 19 2 211 191, RENAULT, Honda 0L999-9011

Art.-Nr.: 1410119





### RAVENOL HTC Hybrid Technology Coolant COLD CLIMATE -60°C

PROTECT MB 325.0

All year-round coolant of blue colour with frost and corrosion protection premixed to -60°C.

MB 325.0, MB A000989082510, VW TL 774-C, ASTM D3306, ASTM D4985, ASTM D4340, SAE J1034, NATO S-759, FORD ESE-M978B4H-A, FORD AF Plus, MAN 324, SAAB, GM 1825M, OPEL-GM QL130100, DAF, GM 1899M, GM 93740141, GM 93740140, VW-AUDI-PORSCHE, GM SATURN, ROVER, PORSCHE, John Deere, JAGUAR, BMW 81 22 9 407 454, 83 19 2 211 191, RENAULT, Honda 0L999-9011

Art.-Nr.: 1410142



### RAVENOL LTC Lobrid Technology Coolant Concentrate

PROTECT C12++

Coolant of lilac colour. It provides highly effective frost and corrosion protection. Application according mixture table. Free of borate, nitrite, amine, phosphate.

VW TL 774-G (acc. to G12++ quality), MAN 324 Type Si-OAT, MB 325.5, Porsche (from model year 2007) Boxster, Cayman, Cayenne, Panamera, VW G012A8GM1, G012A8GM8, G01A8GM9

Art.-Nr.: 1410125



### RAVENOL HJC Hybrid Japanese Coolant Concentrate

PROTECT FL22

Coolant of green colour. It provides highly effective frost and corrosion protection. Application according mixture table.

Mazda FL22 Coolant, Ford WSSM97B55 (Motorcraft Specialty Green Engine Coolant), Ford VC-10-A2, Nissan Anti-freeze Coolant (L250), Nissan KE90299934, KE90299944, 08CLAGO10SO Honda E Coolant, Hyundai Long Life Coolant, Hyundai 07100-00200, 07100-00400, 00232-19010, Mazda 000077508E20, C122CL005A4X, C100CL005A4X

Art.-Nr.: 1410122



### RAVENOL LTC Lobrid Technology Coolant Premix -40°C

PROTECT C12++

Coolant of lilac colour. It provides highly effective frost and corrosion protection premixed to -40°C. Free of borate, nitrite, amine, phosphate.

VW TL 774-G (acc. to G12++ quality), MAN 324 Type Si-OAT, MB 325.5, Porsche (from model year 2007) Boxster, Cayman, Cayenne, Panamera, VW G012A8GM1, G012A8GM8, G01A8GM9

Art.-Nr.: 1410126



### RAVENOL HJC Hybrid Japanese Coolant Premix -40°C

PROTECT FL22

Coolant of green colour with frost and corrosion protection premixed to -40°C.

Mazda FL22 Coolant, Ford WSSM97B55 (Motorcraft Specialty Green Engine Coolant), Ford VC-10-A2, Nissan Anti-freeze Coolant (L250), Nissan KE90299934, KE90299944, 08CLAGO10SO Honda E Coolant, Hyundai Long Life Coolant, Hyundai 07100-00200, 07100-00400, 00232-19010, Mazda 000077508E20, C122CL005A4X, C100CL005A4X

Art.-Nr.: 1410123



### RAVENOL LTC Lobrid Technology Coolant Hot Climate -15°C

PROTECT C12++

Coolant of lilac colour. It provides highly effective frost and corrosion protection premixed to -15°C. Free of borate, nitrite, amine, phosphate.

VW TL 774-G (acc. to G12++ quality), MAN 324 Type Si-OAT, MB 325.5, Porsche (from model year 2007) Boxster, Cayman, Cayenne, Panamera, VW G012A8GM1, G012A8GM8, G01A8GM9

Art.-Nr.: 1410127



### RAVENOL HJC Hybrid Japanese Coolant Hot Climate -15°C

PROTECT FL22

Coolant of green colour with frost and corrosion protection premixed to -15°C.

Mazda FL22 Coolant, Ford WSSM97B55 (Motorcraft Specialty Green Engine Coolant), Ford VC-10-A2, Nissan Anti-freeze Coolant (L250), Nissan KE90299934, KE90299944, 08CLAGO10SO Honda E Coolant, Hyundai Long Life Coolant, Hyundai 07100-00200, 07100-00400, 00232-19010, Mazda 000077508E20, C122CL005A4X, C100CL005A4X

Art.-Nr.: 1410124



### RAVENOL LTC Lobrid Technology Coolant Cold Climate -60°C

PROTECT C12++

Coolant of lilac colour. It provides highly effective frost and corrosion protection premixed to -60°C. Free of borate, nitrite, amine, phosphate.

VW TL 774-G (acc. to G12++ quality), MAN 324 Type Si-OAT, MB 325.5, Porsche (from model year 2007) Boxster, Cayman, Cayenne, Panamera, VW G012A8GM1, G012A8GM8, G01A8GM9

Art.-Nr.: 1410144



### RAVENOL HJC Hybrid Japanese Coolant COLD CLIMATE -60°C

PROTECT FL22

Coolant of green colour with frost and corrosion protection premixed to -60°C.

Mazda FL22 Coolant, Ford WSSM97B55 (Motorcraft Specialty Green Engine Coolant), Ford VC-10-A2, Nissan Anti-freeze Coolant (L250), Nissan KE90299934, KE90299944, 08CLAGO10SO Honda E Coolant, Hyundai Long Life Coolant, Hyundai 07100-00200, 07100-00400, 00232-19010, Mazda 000077508E20, C122CL005A4X, C100CL005A4X

Art.-Nr.: 1410143



### RAVENOL LGC Lobrid Glycerin Coolant Concentrate

PROTECT C13

Longlife coolant of lilac colour. It provides highly effective frost and corrosion protection. Application according mixture table.

VW TL 774-J (acc. to G13 quality), Volkswagen VW G013A8JM1, G013A8JM8, G013A8JM9, Audi, Skoda and Seat.

Art.-Nr.: 1410128



## Winter Products

Protect your vehicle with RAVENOL winter products for ultimate protection against the winter elements. Our windscreen washer fluids are available both as a concentrate and pre-mixed and therefore directly suitable for use in the vehicle. Also to be found here are car care products suitable for winter use.



### RAVENOL LGC Lobrid Glycerin Coolant Premix -40°C PROTECT C13

Longlife coolant of lilac colour with frost and corrosion protection premixed to -40°C.

VW TL 774-J (acc. to G13 quality), Volkswagen VW G013A8JM1, G013A8JM8, G013A8JM9, Audi, Skoda and Seat.

Art.-Nr.: 1410129



### RAVENOL LGC Lobrid Glycerin Coolant Hot Climate -15°C PROTECT C13

Longlife coolant of lilac colour with frost and corrosion protection premixed to -15°C.

VW TL 774-J (acc. to G13 quality), Volkswagen VW G013A8JM1, G013A8JM8, G013A8JM9, Audi, Skoda and Seat.

Art.-Nr.: 1410130



### RAVENOL HDT Heavy Duty Truck Cool. Concentrate

Ethylene glycol coolant, based on low silicate technology in combination with nitrite and molybdate

ASTM D6210, ASTM D3306, ASTM D4985, Caterpillar EC-1, Cummins CES 14603, Cummins SB 3666132, Detroit Diesel Corporation 7SE298, TMC RP329 Type A

Art.-Nr.: 1410115



### RAVENOL HDT Heavy Duty Truck Cool. Premix -40°C

Prediluted ethylene glycol coolant, based on low silicate technology in combination with nitrite and molybdate to -40°C

ASTM D6210, ASTM D3306, ASTM D4985, Caterpillar EC-1, Cummins CES 14603, Cummins SB 3666132, Detroit Diesel Corporation 7SE298, TMC RP329 Type A

Art.-Nr.: 1410116



### RAVENOL Food Grade Antifreeze FGA

Propylene glycol based antifreeze. Protection up to -50°C. Used in foodstuffs industries, also HVAC (Heating, Ventilation, Air Conditioning) systems.

NSF Nonfood Compounds Program Registration HT1: Registration-no.: 142387

Art.-Nr.: 1410135



### RAVENOL Scheibenfrostschutz Konzentrat

Screen washer antifreeze concentrate.

Appropriate for Polycarbonate windscreens, compatible with varnish, appropriate for the use in fan jets.

Art.-Nr.: 1420100



### RAVENOL Scheibenfrostschutz -30°C

Screen washer antifreeze.

Appropriate for Polycarbonate windscreens, compatible with varnish, appropriate for the use in fan jets.

Art.-Nr.: 1420105



### RAVENOL Antifrost-Enteiser

Antifrost de-icer.

Art.-Nr.: 1420210



### RAVENOL Frostschutz für Druckluftbremsen

Air brake system antifreeze.

Art.-Nr.: 1430208





**RAVENOL Fließverbesserer**

Diesel fuel and fuel oil additive to prevent waxing and plugging at low temperatures.  
Use according to mixture table.

Use according to mixture table.

Art.-Nr.: 1430220



**RAVENOL Türschloss-Enteiser**

Lock de-icer.

Art.-Nr.: 1430203



**RAVENOL Schloßöl**

Effective maintenance oil for door locks.

Art.-Nr.: 1430207



**RAVENOL Glycerin Stift**

For the care of rubber seals on vehicles of all types also used in household, trade and industry.

Art.-Nr.: 1440206



## Cars

| Brand      | Model      | Year of manufacture |      | Coolant |                  |
|------------|------------|---------------------|------|---------|------------------|
|            |            | from                | to   |         |                  |
| Alfa Romeo | all models | 1976                | 2005 | TTC     | Protect C11      |
|            | all models | 2005                |      | OTC     | Protect C12+     |
| Audi       | all models | 1981                | 1996 | TTC     | Protect C11      |
|            | all models | 1996                | 2008 | OTC     | Protect C12+     |
|            | all models | 2007                |      | HTC     | Protect MB 325.0 |
| Bentley    | all models | 2008                |      | LGC     | Protect C13      |
|            | all models | 1980                | 2005 | TTC     | Protect C11      |
|            | all models | 2005                | 2008 | OTC     | Protect C12+     |
| BMW        | all models | 2008                |      | LGC     | Protect C13      |
|            | all models | 1975                |      | TTC     | Protect C11      |
| Chevrolet  | all models | 2007                |      | HTC     | Protect MB 325.0 |
|            | all models | 2001                |      | OTC     | Protect C12+     |
| Chrysler   | all models | 1985                | 2007 | TTC     | Protect C11      |
|            | all models | 2008                |      | OTC     | Protect C12+     |
| Citroën    | all models | 1993                |      | OTC     | Protect C12+     |
| Dacia      | all models | 2005                |      | OTC     | Protect C12+     |
| Daihatsu   | all models | 1979                | 1998 | HJC     | Protect FL22     |
|            | all models | 1999                |      | OTC     | Protect C12+     |
| Dodge      | all models | 1985                | 2007 | TTC     | Protect C11      |
|            | all models | 2008                |      | OTC     | Protect C12+     |
| Ferrari    | all models | 1979                | 2005 | TTC     | Protect C11      |
|            | all models | 2005                |      | OTC     | Protect C12+     |
| Fiat       | all models | 1982                | 2005 | TTC     | Protect C11      |
|            | all models | 2005                |      | OTC     | Protect C12+     |
| Ford       | all models |                     | 1997 | TTC     | Protect C11      |
|            | all models | 1998                | 2006 | OTC     | Protect C12+     |
|            | all models | 2007                |      | HTC     | Protect MB 325.0 |
| Honda      | all models | 1983                | 1998 | HJC     | Protect FL22     |
|            | all models | 1999                | 2006 | OTC     | Protect C12+     |
|            | all models | 2007                |      | HTC     | Protect MB 325.0 |
| Hyundai    | all models | 1983                | 1998 | HJC     | Protect FL22     |
|            | all models | 1999                |      | OTC     | Protect C12+     |
| Jaguar     | all models | 1986                | 1999 | TTC     | Protect C11      |
|            | all models | 1999                |      | OTC     | Protect C12+     |
|            | all models | 2007                |      | HTC     | Protect MB 325.0 |
| Jeep       | all models | 1976                | 1998 | TTC     | Protect C11      |
|            | all models | 1999                |      | OTC     | Protect C12+     |

| Brand       | Model                                        | Year of manufacture |      | Coolant |                  |
|-------------|----------------------------------------------|---------------------|------|---------|------------------|
|             |                                              | from                | to   |         |                  |
| KIA         | all models                                   | 1991                | 1998 | HJC     | Protect FL22     |
|             | all models                                   | 1999                |      | OTC     | Protect C12+     |
| Lada        | all models                                   |                     |      | TTC     | Protect C11      |
| Lancia      | all models                                   | 1976                | 2005 | TTC     | Protect C11      |
|             | all models                                   | 2005                |      | OTC     | Protect C12+     |
| Land Rover  | Freelander, Discovery, Defender, Range Rover | 1998                |      | OTC     | Protect C12+     |
|             | Range Rover V8 and Diesel                    | 1998                | 2005 | TTC     | Protect C11      |
|             | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |
| Lexus       | all models                                   | 1994                |      | OTC     | Protect C12+     |
| Lotus       | all models                                   | 1980                | 1999 | TTC     | Protect C11      |
|             | all models                                   | 2000                |      | OTC     | Protect C12+     |
| Mazda       | all models                                   | 1977                |      | HJC     | Protect FL22     |
| Mahindra    | all models                                   |                     |      | HJC     | Protect FL22     |
| Mercedes    | all models                                   | 1976                |      | TTC     | Protect C11      |
|             | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |
| MG Rover    | all models                                   | 1982                | 1997 | TTC     | Protect C11      |
|             | all models                                   | 1998                |      | OTC     | Protect C12+     |
| MINI        | mit Benzinmotor                              | 2001                |      | TTC     | Protect C11      |
|             | Diesel                                       | 2007                |      | OTC     | Protect C12+     |
| Mitsubishi  | all models                                   | 1982                |      | OTC     | Protect C12+     |
|             | Carisma                                      | 1996                | 2004 | HJC     | Protect FL22     |
|             | Colt                                         | 2004                | 2007 | HJC     | Protect FL22     |
| Morgan      | all models                                   |                     |      | TTC     | Protect C11      |
| Nissan      | all models                                   | 1982                | 1997 | HJC     | Protect FL22     |
|             | all models                                   | 1998                |      | OTC     | Protect C12+     |
| Opel        | all models                                   | 1975                | 2000 | TTC     | Protect C11      |
|             | all models                                   | 2001                |      | OTC     | Protect C12+     |
|             | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |
| Peugeot     | all models                                   | 1993                | 1997 | TTC     | Protect C11      |
|             | all models                                   | 2008                |      | OTC     | Protect C12+     |
| Porsche     | all models (except for 911)                  |                     | 1995 | TTC     | Protect C11      |
|             | all models                                   | 1996                |      | OTC     | Protect C12+     |
|             | 911, Boxster, Cayman, Cayenne, Panamera      | 1997                |      | LGC     | Protect C13      |
|             | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |
| Renault     | all models                                   | 1985                | 1997 | TTC     | Protect C11      |
|             | all models                                   | 1998                | 2006 | OTC     | Protect C12+     |
|             | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |
| Rolls-Royce | all models                                   | 1998                |      | TTC     | Protect C11      |
| Rover       | all models                                   | 2007                |      | HTC     | Protect MB 325.0 |



| Brand      | Model      | Year of manufacture |      | Coolant |                  |
|------------|------------|---------------------|------|---------|------------------|
|            |            | from                | to   |         |                  |
| Saab       | all models | 1975                | 2000 | TTC     | Protect C11      |
|            | all models | 2001                |      | OTC     | Protect C12+     |
|            | all models | 2007                |      | HTC     | Protect MB 325.0 |
| Saturn     | all models |                     |      | HTC     | Protect MB 325.0 |
| Seat       | all models | 1985                | 1996 | TTC     | Protect C11      |
|            | all models | 1997                | 2007 | OTC     | Protect C12+     |
|            | all models | 2008                |      | LGC     | Protect C13      |
| Skoda      | all models | 1989                | 1998 | TTC     | Protect C11      |
|            | all models | 1998                | 2008 | OTC     | Protect C12+     |
|            | all models | 2008                |      | LGC     | Protect C13      |
| Smart      | all models | 1998                |      | TTC     | Protect C11      |
| Subaru     | all models | 1977                | 1999 | HJC     | Protect FL22     |
|            | all models | 2000                |      | OTC     | Protect C12+     |
| Suzuki     | all models | 1981                | 1999 | HJC     | Protect FL22     |
|            | all models | 2000                |      | OTC     | Protect C12+     |
| Toyota     | all models | 1978                | 1999 | HJC     | Protect FL22     |
|            | all models | 2000                |      | OTC     | Protect C12+     |
| Volkswagen | all models | 1975                | 1996 | TTC     | Protect C11      |
|            | all models | 1997                | 2008 | OTC     | Protect C12+     |
|            | all models | 2008                |      | LGC     | Protect C13      |
| Volvo      | all models | 1982                |      | TTC     | Protect C11      |

### Motor Trucks

| Brand         | Model      | Year of manufacture |        | Coolant |               |
|---------------|------------|---------------------|--------|---------|---------------|
|               |            | from                | to     |         |               |
| Avia Trucks   | all models |                     |        | TTC     | Protect C11   |
| Cummins       | all models |                     |        | HDT/LTC | Protect C12++ |
| Daewoo        | all models |                     |        | OTC     | Protect C12+  |
| DAF           | all models |                     |        | OTC     | Protect C12+  |
| Freightliner  | all models |                     |        | TTC     | Protect C11   |
| GMC           | all models |                     |        | TTC     | Protect C11   |
| Iveco         | all models |                     |        | TTC     | Protect C11   |
| Kenworth      | all models |                     |        | TTC     | Protect C11   |
| LIAZ          | all models |                     |        | TTC     | Protect C11   |
| Mack          | all models |                     |        | TTC     | Protect C11   |
| MAN           | all models |                     | Nov 11 | TTC     | Protect C11   |
|               | all models | Dez 11              |        | LTC     | Protect C12++ |
| Mercedes-Benz | all models |                     | Sep 11 | TTC     | Protect C11   |
|               | all models | Okt 11              |        | LTC     | Protect C12++ |

| Brand           | Model      | Year of manufacture |      | Coolant |              |
|-----------------|------------|---------------------|------|---------|--------------|
|                 |            | from                | to   |         |              |
| Mitsubishi Fuso | all models |                     |      | OTC     | Protect C12+ |
| Nissan          | all models |                     |      | OTC     | Protect C12+ |
| Pegaso          | all models |                     |      | TTC     | Protect C11  |
| Peterbilt       | all models |                     |      | TTC     | Protect C11  |
| Renault         | all models |                     |      | OTC     | Protect C12+ |
| Sisu            | all models |                     |      | TTC     | Protect C11  |
| Tatra           | all models |                     |      | TTC     | Protect C11  |
| Ural            | all models |                     |      | TTC     | Protect C11  |
| Volvo           | all models |                     | 2005 | TTC     | Protect C11  |
|                 | all models | 2006                |      | OTC     | Protect C12+ |

### Engines

| Brand         | Model                    | Year of manufacture |    | Coolant |               |
|---------------|--------------------------|---------------------|----|---------|---------------|
|               |                          | from                | to |         |               |
| Cummins       | all models               |                     |    | LTC     | Protect C12++ |
|               | all models               |                     |    | OTC     | Protect C12+  |
| DAF           | all models               |                     |    | TTC     | Protect C11   |
| Deutz         | all models               |                     |    | TTC     | Protect C11   |
| MAN           | all models               |                     |    | TTC     | Protect C11   |
|               | all models               |                     |    | LTC     | Protect C12++ |
| Mercedes-Benz | all models               |                     |    | TTC     | Protect C11   |
|               | all models               |                     |    | LTC     | Protect C12++ |
| MTU           | all models               |                     |    | TTC     | Protect C11   |
|               | all models (alternative) |                     |    | OTC     | Protect C12+  |
| Perkins       | all models               |                     |    | TTC     | Protect C11   |

### Construction Machines & Tractors

| Brand      | Model      | Year of manufacture |    | Coolant |              |
|------------|------------|---------------------|----|---------|--------------|
|            |            | from                | to |         |              |
| ATLAS      | all models |                     |    | TTC     | Protect C11  |
| CNH        | all models |                     |    | TTC     | Protect C11  |
| Demag      | all models |                     |    | TTC     | Protect C11  |
| Fendt      | all models |                     |    | TTC     | Protect C11  |
| GINAF      | all models |                     |    | OTC     | Protect C12+ |
| Gottwald   | all models |                     |    | TTC     | Protect C11  |
| Grove      | all models |                     |    | TTC     | Protect C11  |
| Hiab       | all models |                     |    | TTC     | Protect C11  |
| John Deere | all models |                     |    | TTC     | Protect C11  |
| Jonsred    | all models |                     |    | TTC     | Protect C11  |
| Liebherr   | all models |                     |    | TTC     | Protect C11  |



# Fuel Additives

Additives are active ingredients in the fuel, lubricant or coolant, which emphasize certain positive characteristics while reducing negative effects, such as friction or increased soot emissions. RAVENOL additives help saving money, because the combustion is improved and the fuel consumption is reduced.

Further advantages can be achieved through the regular use of RAVENOL additives with cleaning, conserving and maintaining the engine.

*RAVENOL additives are available for many applications with a variety of tasks such as:*

- ▶ Cleaning
- ▶ Wear reduction
- ▶ Quality improvement
- ▶ Corrosion protection
- ▶ Improvement in performance

## Effectiveness:

We can provide a certified effectiveness delivered by TÜV Thüringen for our two products RAVENOL Petrol Performance Optimizer Premium and RAVENOL Diesel Performance Optimizer Premium for reducing the emissions.



### RAVENOL Petrol Performance Optimizer Premium

TÜV geprüft

High performance additive, cleans and protects the petrol fuel system. TÜV certified reduction of NOx -emission.

Art.-Nr.: 1390201



### RAVENOL Petrol System Cleaner

Cleans and protects the injection system from corrosion.

Art.-Nr.: 1390202



### RAVENOL Petrol Quality Stabilisator

Improves starting behavior. Corrosion and aging protection during long standstill periods.

Art.-Nr.: 1390203



### RAVENOL Octane Booster

Higher performance by increasing octanenumber.

Art.-Nr.: 1390204



### RAVENOL Diesel Performance Optimizer Premium

TÜV geprüft

High performance additive, cleans and protects the diesel fuel system. TÜV certified reduction of CO and HC-emission.

Art.-Nr.: 1390241



### RAVENOL Diesel Cetane Booster

Improve the ignition behavior, especially during cold starts.

Art.-Nr.: 1390242





**RAVENOL Diesel System Cleaner**

Cleans the fuel injection system for low soot combustion.

Art.-Nr.: 1390243



**RAVENOL Diesel Quality Stabilisator**

Optimized storage stability and antibacterial effect.

Art.-Nr.: 1390244



**RAVENOL Professional Radiator Stop Leak**

Seals small leaks, safe and fast.

Art.-Nr.: 1390301



**RAVENOL Professional Radiator Cleaner**

Cleaning concentrate for the cooling and heating system.

Art.-Nr.: 1390302



**RAVENOL Professional Engine Cleaner**

Motor cleaning concentrate against black sludge.

Art.-Nr.: 1390321

## Commercial Vehicles Engine Oils

The extensive range of RAVENOL Commercial Vehicle engine oils offers the appropriate lubricant for every requirement. The use of special additives mixed with carefully selected base oils guarantees suitability both at low temperatures as well as for particularly heavy duty applications. The quality of our products undergoes regular checks by the truck manufacturing industry and is underlined by the large number of OEM approvals attained.



**RAVENOL Arctic Truck**

SAE 0W-30      API CH-4/SJ

Fully synthetic motor oil for diesel engines of commercial vehicles and high-performance equipment with heavy loads and in stationary plants. "Cold start" at -40°C.

Global DHD-1, JASO DH-1, Caterpillar ECF-1, Cummins CES 20076, Detroit Diesel 7S E270 (4-Stroke Cycle), MACK EO-M, Komatsu, Hitachi, Liebherr

Art.-Nr.: 1121100



**RAVENOL Super Performance Truck**

SAE 5W-30      API CF/CI-4      ACEA E4, E7

USHPD low friction motor oil for commercial vehicle. Oil change interval up to over 100,000 km. All year recommended for EURO I, II, III, IV and EURO V engines.

MB 228.5, MB 235.28, MTU Type 3, MAN M3277, Volvo VDS 3, VDS 2, Cummins CES 20076, -77, -78, Renault RXD, IVECO, MACK EO-M Plus, Voith Retarder B, Global DHD-1, JASO DH-1, SCANIA LDF-3

Art.-Nr.: 1122102



**RAVENOL Super Synthetic Truck**

SAE 5W-30      ACEA E7, E6, E4

All-season fully synthetic "Low SAPS" lorry motor oil. For use in EURO 4 and EURO 5 engines along with low-sulphur diesel. Suitable for use in engines with or without particle filter and catalytic converter.

MB 228.51, MAN 3477, MTU Type 3.1, Volvo VDS-3, Renault RXD

Art.-Nr.: 1121101



**RAVENOL NDT Nord Duty Truck**

SAE 5W-40      API CJ-4/SM

All-season multigrade engine oil for use in heavy duty commercial vehicle diesel engines with optimized exhaust systems. Extended oil change intervals.

MB 228.31, Volvo VDS-4, Renault RLD-3, Mack EO-0 Premium plus, MTU Type 2, Cummins CES 20081, Detroit Diesel DD93K218, DD93K215, DD93K214

Art.-Nr.: 1122103

**RAVENOL Low Emission Truck**

SAE 10W-30      API CJ-4/SN      ACEA E7, E9

Heavy Duty engine which fulfils API CJ-4 requirements and is formulated with unique low SAPS high performance additives in combination with special selected base oils.

VOLVO VDS-4, Mack EO-0 Premium Plus, Renault VI RLD 3, MB 228.31, MAN M3575, Caterpillar ECF-2/-3

Art.-Nr.: 1122110

**RAVENOL Expert SHPD**

SAE 10W-40      API CI-4/SL      ACEA E4, E7, A3/B4

Universal low friction motor oil for high performance suction and turbo diesel engines. Longest oil change intervals.

MB 228.3, MB 229.1, Cummins CES 20077, -78, DEUTZ DQC III-10, MAN M 3275-1, MACK EOM-Plus, MACK EO-N, MTU Type 2, Renault VI RLD-2, TEDOM 258-3 (61-0-0258), Volvo VDS 3, YaMZ, Cummins CES 20071, -72, -76, SCANIA LDF, Global DHD-1, VW 500 00, 505 00, Caterpillar TO-2, Allison C4, Voith Retarder B, IVECO, DAF

Art.-Nr.: 1122105

**RAVENOL Low Emission Truck**

SAE 10W-40      API CJ-4/SN      ACEA E9

All-season multigrade SHPD engine oil (Super High Performance Diesel), which has been developed to the exhaust emission standards Euro 5 and Euro 6 and is used in extremely heavy duty commercial vehicle diesel engines

MB 228.31, MAN M 3575, Volvo VDS-4 (STD 417-0001), Renault VI RLD-3, Deutz DQC III-10 LA, MTU MTL 5044 Type 2.1, Caterpillar ECF-1a, ECF-2 and ECF-3, Cummins CES 20081, Detroit Diesel DDC 93K218, Mack EO-0 Premium Plus

Art.-Nr.: 1122109

**RAVENOL Performance Truck**

SAE 10W-40      API CF/CI-4      ACEA E4, E7, A3/B4

Semi-synthetic multi grade low friction diesel engine motor oil, UHPD High performance motor oil. Suitable for longest oil change intervals.

MB 228.5, MAN M3277, MTU Type 3, VOLVO VDS 3, Renault RVI RXD/RLD-2, TEDOM 258-4 (61-0-0258), DAF HP1/2, DEUTZ DQC III-10, SCANIA LDF 2, MACK EO-M Plus, Cummins CES 20076, -77, -78, JASO DH-1 (JASO M355:2000), Voith Retarder B, Global DHD-1, SCANIA LDF-3

Art.-Nr.: 1122106

**RAVENOL Low Emission Truck**

SAE 15W-40      API CJ-4/SM      ACEA E7, E9

Mineral multi grade truck engine oil with highest performance. For use in EURO 5 engines with exhaust systems (EGR, SCR, DPF, DPD, DPR), EURO 3 and EURO 4 engines. Enhanced performance and cleanness of the engines.

VOLVO VDS 4, Mack EO-0 Premium Plus, Renault VI RLD 3 (compliance), Detroit Diesel Power Guard Oil Specification 93K214, Cummins CES 20081, TATRA 30/12, MB 228.31, MAN M3575, Caterpillar ECF-2/-3, JASO DH-2, Japan Ultra-Low PM Emission Diesel, EURO IV and EURO V, U.S. EPA Tier 3 emissions regulation, DDC 93K218

Art.-Nr.: 1123100

**RAVENOL EURO IV Truck**

SAE 10W-40      ACEA E6, E7

Universal low friction motor oil based on synthetic PAO- and HC-Base oils, for high performance suction and turbo diesel engines. Also suitable for gasoline engines. Recommended for EURO I, II, III, IV and EURO V engines.

MB 228.51, MAN M3477, MTU Type 3, MTU Type 3.1, Renault RXD, VOLVO VDS-3, Mack EO-N, Renault VI RLD-2, Scania LDF, Deutz DQC III-10 LA, DAF HP-2, MAN M3277 (CRF, exhaust gas return system)

Art.-Nr.: 1122107

**RAVENOL Turbo-Plus SHPD**

SAE 10W-30      API CI-4/SL      ACEA E7, A3/B4

Mineral SHPD-motor oil for mixed fleet of diesel and gasoline engines also with turbochargers. Specially designed for extended oil change intervals.

YAMZ, MB 228.3, MAN M 3275, Volvo VDS 3, MTU Type 3, Renault RLD, Cummins CES 20071, -72, -76, -77, Caterpillar TO-2

Art.-Nr.: 1123105

**RAVENOL EURO VI Truck**

SAE 10W-40      API CJ-4/SN      ACEA E9

Semi-synthetic fuel economy "Low SAPS" year-round multigrade diesel engine oil based on the latest additive technology combined with very special base oils.

Deutz DQC III-10 LA, MB 228.51, Cummins CES 20076/77, MAN M3477, M3271-1, MTU Type 3.1, MTU Type 3, VOLVO VDS-3, Renault RLD-2, RXD, MACK EO-N, Scania LDF-2

Art.-Nr.: 1122108

**RAVENOL Turbo-Plus SHPD**

SAE 15W-40      API CI-4/CI-4+/CH-4/SL      ACEA E7, A3/B4

Mineral SHPD-motor oil for mixed fleet of diesel and gasoline engines also with turbochargers. Specially designed for extended oil change intervals.

MB 228.3, MB 229.1, MAN M3275-1 (Multigrades), Volvo VDS 3, MTU Type 2, STEYR Motor GAZ 560, YaMZ, Cummins CES 20071, -72, 76, -77, -78, Renault RLD/RLD-2, ZF TE-ML 07C, TEDOM 258-3 (61-0-0258), JASO DH-1 (D049RAV123), Deutz DQC III-10, Global DHD-1, Mack EO-M, EO-M Plus, IVECO, Allison C4, Caterpillar TO-2, KHD (Klöckner-Humboldt Deutz), Scania LDF

Art.-Nr.: 1123115



**RAVENOL Turbo-Plus SHPD**

SAE 20W-50      API CI-4/SL      ACEA E7, A3/B4

Mineral SHPD-motor oil for mixed fleet of diesel and gasoline engines also with turbochargers. Specially designed for extended oil change intervals.

MB 228.3, MAN M 3275, Volvo VDS 3, MTU Type 3, Renault RLD, Cummins CES 20071, -72, -76, -77, Caterpillar TO-2

Art.-Nr.: 1123120

**RAVENOL Spezial Diesel**

SAE 15W-40      API CD      ACEA B2

Multigrade motor oil for diesel engines with and without turbo charging. All year lubrication at different conditions.

MIL-L-46152 B, MIL-L-2104 D, MB 227.1, CCMC G4

Art.-Nr.: 1113311

**RAVENOL Formel Diesel Super**

SAE 10W-30      API CF-4/CF      ACEA E2, B4

High performance mineral multi grade motor oil for diesel engines with or without turbo charger. Extended oil change intervals.

MB 228.1, VW 505 00, MAN 271, Volvo VDS, MTU Type 2, ZF TE-ML 07C, Cat. TO-2, Allison C4

Art.-Nr.: 1123205

**RAVENOL Super Truck**

SAE 10W      API CF-4      ACEA E2, B4

Monograde mineral motor oil used in trucks and stationary plants. High wear and corrosion protection.

MB 228.0, MAN 270, MTU Type 1, VOITH DIWA

Art.-Nr.: 1123710

**RAVENOL Formel Diesel Super**

SAE 15W-40      API CF-4      ACEA E2, B4

High performance mineral multi grade motor oil for diesel engines with or without turbo charger. Extended oil change intervals.

MB 228.1, MB 229.1, MAN 271, ZF TE-ML 07C, MTU Type 2, VW 505 00, Allison C4, Cat. TO-2, VOLVO VDS, MACK EO-L, Renault RD-2/RLD, TEDOM 258-2 (61-0-0258)

Art.-Nr.: 1123215

**RAVENOL Super Truck**

SAE 20W-20      API CF-4      ACEA E2, B4

Monograde mineral motor oil used in trucks and stationary plants. High wear and corrosion protection.

MB 228.0

Art.-Nr.: 1123715

**RAVENOL Formel Diesel Super**

SAE 20W-50      API CF-4      ACEA E2, B4

High performance mineral multi grade motor oil for diesel engines with or without turbo charger. Extended oil change intervals.

MB 228.1, VW 505 00, MAN 271, Volvo VDS, MTU Type 2, ZF TE-ML 07C, Cat. TO-2, Allison C4

Art.-Nr.: 1123220

**RAVENOL Super Truck**

SAE 30      API CF-4      ACEA E2, B4

Monograde mineral motor oil used in trucks and stationary plants. High wear and corrosion protection.

MB 228.0, ZF TE-ML 04B

Art.-Nr.: 1123720

**RAVENOL Spezial Diesel**

SAE 10W-30      API CD      ACEA B2

Multigrade motor oil for diesel engines with and without turbo charging. All year lubrication at different conditions.

MIL-L-46152 B, MIL-L-2104 D, MB 227.1, CCMC G4

Art.-Nr.: 1113310

**RAVENOL Super Truck**

SAE 40      API CF-4      ACEA E2, B4

Monograde mineral motor oil used in trucks and stationary plants. High wear and corrosion protection.

MB 228.0, MAN 270, MTU Type 1, VOITH DIWA, ZF TE-ML 04B

Art.-Nr.: 1123725



**RAVENOL Super Truck**

SAE 50      API CF-4      ACEA E2, B4

Monograde mineral motor oil used in trucks and stationary plants.  
High wear and corrosion protection.

MB 228.0

Art.-Nr.: 1123726

**RAVENOL Standard Truck**

SAE 50      API CD      ACEA E2, B4

Universal mineral monograde motor oil used in diesel engines with and without turbo charging in trucks. Also suitable for stationary plants.

MTU Type 1 (DDC BR 2000 & 4000), MB 228.0, MAN 270, VOITH Retarder A,  
VOITH DIWA, ZF TE-ML 02C, 03B, 04B, 06A, 07D

Art.-Nr.: 1123626

**RAVENOL Standard Truck**

SAE 10W      API SG/CF      ACEA E2, B4

Universal mineral monograde motor oil used in diesel engines with and without turbo charging in trucks. Also suitable for stationary plants.

MB 227.0, MB 228.0, MAN 270, Cat. T0-2, MTU Type 1, Allison C4,  
ZF TE-ML 03, 04, 05, 06, 07, 10, 14

Art.-Nr.: 1123610

**RAVENOL Standard Truck**

SAE 20W-20      API SG/CF      ACEA E2, B4

Universal mineral monograde motor oil used in diesel engines with and without turbo charging in trucks. Also suitable for stationary plants.

MB 227.0, MB 228.0, MAN 270, Cat. T0-2, MTU Type 1, Allison C4,  
ZF TE-ML 03, 04, 05, 06, 07, 10, 14

Art.-Nr.: 1123615

**RAVENOL Standard Truck**

SAE 30      API CD      ACEA E2, B4

Universal mineral monograde motor oil used in diesel engines with and without turbo charging in trucks. Also suitable for stationary plants.

MTU Type 1 (DDC BR 2000 & 4000), MB 228.0, MAN 270, VOITH Retarder A,  
VOITH DIWA, ZF TE-ML 02C, 03B, 04B, 06A, 07D

Art.-Nr.: 1123620

**RAVENOL Standard Truck**

SAE 40      API CF      ACEA E2, B4

Universal mineral monograde motor oil used in diesel engines with and without turbo charging in trucks. Also suitable for stationary plants.

MTU Type 1 (DDC BR 2000 & 4000), MB 228.0, MAN 270, VOITH Retarder A,  
VOITH DIWA, ZF TE-ML 02C, 03B, 04B, 06A, 07D

Art.-Nr.: 1123625



## Tractor and Off-Highway Lubricants

RAVENOL Tractor and Off-Highway Lubricants are specifically developed to meet the strenuous demands of agricultural and construction equipment. These have special requirements, which cannot be met by standard lubricants as many have, for example, a common oil circuit for transmission, rear axle, and hydraulics which needs to be taken into account.

For such machinery a universal oil, Super **Universal Tractor Oil (STOU)** is used, which addresses the combined requirements of differential and gear oils (API GL-4 with Limited-Slip (LS) additives), engine oil, as well as those of a hydraulic oil. **Universal Tractor Transmission Oils (UTTO-oils)**, on the other hand, are only suitable for transmission, wet brakes and hydraulics, but not for the engine.



### RAVENOL STOU

SAE 20W-40 API SF/CE/CF-4, GL-4 ACEA CCMC G2/D4

Special oil type STOU for agricultural machines, excavators and construction equipment. For use in engines, transmissions and hydraulic systems.

Ford M2C-159C, MF M-1143/1144, ZF TE-ML 06B, 07B, Allison C-4, Cat. TO-2, Ford M2C 86A/134D, John Deere J 27, NH 420A/NH 410B, MB 227.1

Art.-Nr.: 1310114



### RAVENOL STOU

SAE 10W-30 API SF/CE/CF-4/CG-4, GL-4, HLP ISO VG 68 ACEA E2

Special oil type STOU for agricultural machines, excavators and construction equipment. For use in engines, transmissions, hydraulic systems and compressors.

SAE 80W, API GL-4, MIL-L-2105, Allison C4, Caterpillar TO-2, ZF TE-ML 06B, 07B, HLP ISO VG 68, Vickers-Pump test, Ford-Pump test, Denison HF 2, John Deere J27 A, J20 C/D, Ford NH 024C, 324B, 540B, Massey-Ferguson M 1127, M 1139, M 1144, Case International J I, Case MS 1118/1209/1206, FIAT AF 87, International Harvester B6, Holman Compair Compressor, Atlas Copco Compressor

Art.-Nr.: 1310100



### RAVENOL CATOEL TO-4

API CF/CF-2

Specific oil for construction vehicles and tractor vehicles.

Caterpillar TO-4, Allison C4, Komatsu Micro Clutch, Eaton Fuller, ZF TE-ML 03C, 07F

Art.-Nr.: 1310610 SAE 10W

Art.-Nr.: 1310613 SAE 30

Art.-Nr.: 1310614 SAE 40



### RAVENOL STOU

SAE 15W-30 API CE/SF, GL-4, HLP ISO VG 68 ACEA E1/E2

Special oil type STOU for agricultural machines, excavators and construction equipment. For use in engines, transmissions and hydraulic systems.

SAE 80W, API GL-4, MIL-L-2105, Allison C4, Caterpillar TO-2, ZF TE-ML 06B, 07B, HLP ISO VG 68, Vickers-Pumpentest, Ford-Pumpentest, Denison HF 2, John Deere J27 A, J20 C/D, Ford NH 024C, 324B, 540B, Massey-Ferguson M 1127, M 1139, M 1144, Case International J I, Case MS 1118/1209/1206, FIAT AF 87, International Harvester B6, Holman Compair Kompressor, Atlas Copco Kompressor

Art.-Nr.: 1310112



### RAVENOL CATOEL TO-4

API CF

Specific oil for construction vehicles and tractor vehicles.

Caterpillar TO-4, Allison C4, Komatsu Micro Clutch, Eaton Fuller, ZF TE-ML 03C, 07F

Art.-Nr.: 1310615 SAE 50

Art.-Nr.: 1310616 SAE 60



### RAVENOL STOU

SAE 10W-40 API CG-4, GL-4, ISO VG 32-100 ACEA E2

Special oil type STOU for agricultural machines, excavators and construction equipment. For use in engines, transmissions and hydraulic systems.

Massey-Ferguson M 1127, M 1139, M 1144, MB-Blatt 227.1, John Deere J 27 A, J20 C/D, Steyr 387 88001, Case International J I Case MS 1118/1209, FIAT AF 87, Ford ESN-M2C-41B, -86A, -121E, -134D, -159 B/C, Ford NH 024C, 324B, 40B, International Harvester B6, MIL-L-2105, MIL-L-2104 D, Allison C-4, Caterpillar TO-2, ZF TE-ML 06B, 07B, Denison HF 2, Holman Compair Kompressor; Atlas Copco Kompressor

Art.-Nr.: 1310111



### RAVENOL UTTO BIO

API GL-4

Biodegradable universal hydraulic and transmission oil for use in hydraulic and transmission systems of agriculture and road construction equipment.

Massey Fergusson, John Deere, Ford New Holland, Biodegradability: CEC-L-33-T83 <90% (3 Wks.)

Art.-Nr.: 1310720



### RAVENOL STOU

SAE 15W-40 API SF/CE/CF-4, GL-4 ACEA E1, CCMC G2/D4

Special oil type STOU for agricultural machines, excavators and construction equipment. For use in engines, transmissions and hydraulic systems.

Ford M2C-159C, MF M-1143/1144, ZF TE-ML 06B, 07B, Allison C-4, Cat. TO-2, Ford M2C 86A/134D, John Deere J 27, NH 420A/NH 410B, MB 227.1

Art.-Nr.: 1310113



### RAVENOL Getriebeöl UTTO

API GL-4

Mineral gearoil for use in hydraulic and transmission systems of tractors.

ZF TE-ML 03E, 05F, 06K, 17E, 21F, Ford M2C-134D, CNH MAT 3525, MF M-1135, M-1143, M-1145, John Deere JDM 20A/C, Allison C3/C4, Caterpillar TO-2, VOLVO WB 101, Fiat, NH 410B, NH 420A, Case MS 1205, 1206, 1207

Art.-Nr.: 1310700



# Motobike oils



RAVENOL Motobike products are designed specifically for motorcyclists and their challenging bikes. A special composition of additives offers even under harshest driving conditions optimum lubrication. Many of our oils for motorcycle, scooter and quad are listed in the Japan Lubricating Oil Society (Jalos). This file was developed of the Japanese Automotive Standards Organization (JASO).

## 2-stroke motorbikes:

Originally JASO specifications were developed for two-stroke engines. It evaluates the performance of two-stroke oils in particular according to the criteria of engine cleanliness, lubricity, carbon deposits in the exhaust system and exhaust.

| 2-stroke motorbikes | working conditions |
|---------------------|--------------------|
| JASO FA             | light              |
| JASO FB             | middle             |
| JASO FC             | middle + low smoke |
| JASO FD             | high + low smoke   |

## 4-stroke motorbikes:

For 4-stroke motorcycles with wet clutch the JASO MA certification is important. In this specification the parameters for wet clutches in motorcycles are checked. In the JASO MA standard an additional test for clutch friction value is necessary which exceeds the API requirements. In the latest JASO MA2 standard is considered the ever-increasing torques of modern motorcycle engines. This specification stands for higher friction coefficients at wet clutches and thus an optimal coupling compatibility with extremely high torque. JASO MA2 is backward compatible with JASO MA, which is still valid and is recommended by many motorcycle manufacturers as a minimum standard.

| 4-stroke motorbikes | working conditions                                            |
|---------------------|---------------------------------------------------------------|
| JASO MA/MA-1        | generally suitable for wet clutches (JASO MA=older than MA-1) |
| JASO MA2            | currently the highest standard for motorbike oils             |



### RAVENOL Motobike 4-T Ester

SAE 5W-30      API SM      JASO MA, MA2

High performance fully synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1171101



### RAVENOL Motobike 4-T Ester

SAE 5W-40      API SM      JASO MA, MA2

High performance fully synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1171102



### RAVENOL Motobike 4-T Ester

SAE 10W-30      API SM      JASO MA, MA2

High performance semi-synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1172111



### RAVENOL Motobike 4-T Ester

SAE 10W-40      API SM      JASO MA, MA2

High performance semi-synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006 M049RAV112, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1172112



### RAVENOL Motobike 4-T Ester

SAE 10W-50      API SM      JASO MA, MA2

High performance fully synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1171103





**RAVENOL Motobike 4-T Ester**

SAE 10W-60      API SM      JASO MA, MA2

High performance fully synthetic motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1171104



**RAVENOL Motobike V-Twin Fullsynth.**

SAE 20W-50

High performance 3 in 1 fully synthetic lubricant for motor, gear and crankshaft. Specifically designed for use in cruiser and chopper motorcycles.

BMW Cruiser Motorcycles, Harley Davidson 62600005, 62600031, Honda 08C35-A251M01, 08C35-A251L01, Indian Motorcycles, Victory Motorcycles, Yamalube LUB-20W50AP04, LUB20W50AP12, Triumph Motorcycles, Moto Guzzi Motorcycles, Suzuki V-Twin Motor Oil

Art.-Nr.: 1171105



**RAVENOL Motobike 4-T Mineral**

SAE 15W-40      API SL      JASO MA, MA2

High performance mineral motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1173121



**RAVENOL Motobike V-Twin Mineral**

SAE 20W-50

High performance 3 in 1 mineral lubricant for motor, gear and crankshaft. Specifically designed for use in cruiser and chopper motorcycles.

BMW Cruiser Motorcycles, Harley Davidson 62600005, 62600031, Honda 08C35-A251M01, 08C35-A251L01, Indian Motorcycles, Victory Motorcycles, Yamalube LUB-20W50AP04, LUB20W50AP12, Triumph Motorcycles, Moto Guzzi Motorcycles, Suzuki V-Twin Motor Oil

Art.-Nr.: 1173105



**RAVENOL Motobike 4-T Ester**

SAE 15W-50      API SM      JASO MA, MA2

High performance mineral motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1172113



**RAVENOL Fork Oil Ultra Light 2,5W, Light 5W**

Fully synthetic fork oil based on ester oils for all forks of high performance motorcycles, especially for SHOWA and USD-forks.

Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1182101 SAE 2,5W

Art.-Nr.: 1182102 SAE 5W



**RAVENOL Motobike 4-T Mineral**

SAE 20W-40      API SM      JASO MA, MA2

High performance mineral motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006 M049RAV123, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1173123



**RAVENOL Fork Oil Medium 10W, Heavy 15W, Very Heavy 20W**

Mineral oil based fork oil for all forks of road and off-road motorcycles.

Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1182104 SAE 10W

Art.-Nr.: 1182105 SAE 15W

Art.-Nr.: 1182106 SAE 20W



**RAVENOL Motobike 4-T Mineral**

SAE 20W-50      API SM      JASO MA, MA2

High performance mineral motor oil with ester additive to meet the demanding requirements of motorcycle engines with wet clutches or oil lubricated clutches.

JASO MA2 T903:2006 M049RAV122, Yamaha, Kawasaki, Honda, Aprilia, BMW, Suzuki, Ducati, Triumph, Moto-Guzzi

Art.-Nr.: 1173122



**RAVENOL Motogear**

SAE 75W-90      API GL-4

Fully synthetic low friction gear oil with especially formulation for extremely stressed manual transmission and rear axles.

Art.-Nr.: 1250050





**RAVENOL Motogear**

SAE 80W-90      API GL-4

Transmission oil based on mineral oil with effective additives for manual transmissions.

Art.-Nr.: 1250055



**RAVENOL Quadrogear**

Special axle oil developed for Quads and ATV with an integrated wet brake.

**KAWASAKI, YAMAHA, BOMBARDIER, SUZUKI**

Art.-Nr.: 1250200



**RAVENOL Motogear**

SAE 80W-90      API GL-5

Hypoid transmission oil based on mineral oil with special high pressure additions for manual transmissions.

Art.-Nr.: 1250070



**RAVENOL Air Filter Oil Spray**

Spray oil for all foam material air filters of off-road and street motorcycles and Quads.

Art.-Nr.: 1360301



**RAVENOL Motogear**

SAE 10W-30      API GL-4

Semi-synthetic special multigrade gear oil, especially for air and water-cooled 2- and 4-stroke machines with a separate gear lubrication.

**YAMAHA**

Art.-Nr.: 1250100



**RAVENOL Air Filter Clean Spray**

Degreases and cleans all foam material air filters of off-road and street motorcycles and Quads thoroughly.

Art.-Nr.: 1360302



**RAVENOL Motogear**

SAE 10W-40      API GL-4

Semi-synthetic special multigrade gear oil based on synthesis technology and special esters for easily switching also under extremely hard operating conditions.

Art.-Nr.: 1250101



**RAVENOL Kettenöl Off Road Spray**

Especially for chain lubrication of off-road motorcycles and Quads.

Art.-Nr.: 1360303



**RAVENOL QUAD 4T**

SAE 10W-40      API SL      JASO MA2

Semi-synthetic motoroil for Quads and ATV.

**KAWASAKI, YAMAHA, BOMBARDIER, SUZUKI**

Art.-Nr.: 1152160



**RAVENOL Kettenöl Reiniger Spray**

Degreases and cleans motorcycle chains as well as the chains of other vehicles thoroughly.

Art.-Nr.: 1360304



## 2- and 4-Stroke Engine Oils



### RAVENOL Carb Reiniger Spray

Cleans carburetors in the suction and throttle valve area thoroughly.

Art.-Nr.: 1360305



### RAVENOL Ketten-Spray

Lubricating spray for chains.

Art.-Nr.: 1360032

A two-stroke, or two-cycle, engine is a type of internal combustion engine which completes a power cycle in only one crankshaft revolution and with two strokes, or up and down movements, of the piston in comparison to a "four-stroke engine", which uses four strokes. This is accomplished by the end of the combustion stroke and the beginning of the compression stroke happening simultaneously and performing the intake and exhaust (or scavenging) functions at the same time.

Gasoline (spark ignition) versions are particularly useful in lightweight (portable) applications such as chainsaws and motor-cycles. They are used in diesel compression ignition engines in large and weight insensitive applications, such as ships, locomotives and electricity generation. The heat transfer from the engine to the cooling system is less in a two-stroke engine than in a four-stroke. This adds to the overall engine efficiency. Two-stroke engines have higher exhaust emissions than four-stroke engines.



### RAVENOL MPS Motocross Powersynth 2T

API TC, ISO-L-EGD JASO FD

High quality fully synthetic two-stroke engine oil with special esters and Polyisobutylene (PIB) for air – and water cooled 2-stroke engines. Suitable for separate lubrication systems and self-mixing systems.

KTM, Beta, GasGas, Husqvarna, Yamaha, Kawasaki, Honda, Suzuki

Art.-Nr.: 1144110



### RAVENOL Vollsynthetisches 2-Taktöl VSZ

API TD, ISO-L-EGD JASO FD

Fully synthetic, high-quality two-stroke oil with special esters and Polyisobutylene (PIB) for air-and water-cooled 2-stroke engines. Suitable for separate lubrication and self-mixing systems. Recommended mixture: max. 1:100.

JASO 049RAV151, Piaggio SI

Art.-Nr.: 1151100



### RAVENOL Selfmix 2T

API TB, ISO-L-EGD NMMA TC-W, JASO FB

Mineral motor oil for self-mixing systems and separate lubrication. Recommended mixture: 1:50.

JASO 049RAV155, Husqvarna, Stihl, Partner, McCulloch, Jonsered, Oleo-Mac, Poulan, Maruyama, Dolmar, Oregon, Makita, Ryobi, Hitachi

Art.-Nr.: 1153100



### RAVENOL 2-Takt-Öl Not Selfmix

API SA

Mineral non-miscible motor oil for 2-stroke engines. For use at low and high temperatures, guarantees functional lubrication.

JASO 049RAV151, Piaggio SI

Art.-Nr.: 1153101





### RAVENOL SCOOTER Fullsynth. 2-Taktöl

API TD, ISO-L-EGD JASO FD

Fully synthetic miscible motor oil with special esters and Polyisobutylene (PIB) for 2-stroke engines with high rotation speed for scooters. Suitable for separate lubrication and self-mixing systems. Recommended mixture: max. 1:100.

JASO 049RAV153, Aprilia, Honda, Kymco, Peugeot, Piaggio, Suzuki, Vespa, Yamaha

Art.-Nr.: 1151150



### RAVENOL Snowmobiles Fullsynth. 2-Takt

API TD, ISO-L-EGD JASO FD

Fully synthetic motor oil for snowmobiles. Recommended mixture: max. 1:100.

JASO 049RAV154, Yamaha, Suzuki, Bombardier, Kawasaki, Arctic Cat

Art.-Nr.: 1151310



### RAVENOL SCOOTER Teilsynth. 2-Taktöl

API TC, ISO-L-EGC JASO FC

High quality "self-mixing" two-stroke motor oil with special esters and Polyisobutylene (PIB) for 2-stroke engines and scooters. Low Smoke. Suitable for separate lubrication and self-mixing systems. Recommended mixture: max. 1:75.

JASO 049RAV150

Art.-Nr.: 1152150



### RAVENOL Snowmobiles Teilsynth. 2-Takt

API TC, ISO-L-EGC JASO FC

Semi-synthetic motor oil for snowmobiles. Recommended mixture: max. 1:75.

JASO 049RAV152, Yamaha, Suzuki, Bombardier, Kawasaki, Arctic Cat, Ski-Doo, Polaris

Art.-Nr.: 1152310



### RAVENOL SCOOTER Mineral 2-Taktöl

API TB, ISO-L-EGB JASO FB

Mineral motor oil for 2-stroke gasoline engines and scooters. Suitable for separate lubrication and self-mixing systems. Recommended mixture: max. 1:50.

JASO 049RAV156, Aprilia, Honda, Kymco, Peugeot, Piaggio, Suzuki, Vespa, Yamaha

Art.-Nr.: 1153150



### RAVENOL Snowmobiles Mineral 2-Takt

API TB, ISO-L-EGB JASO FB

Mineral motor oil for snowmobiles. Recommended mixture: max. 1:50.

JASO 049RAV157, Yamaha, Suzuki, Bombardier, Kawasaki, Arctic Cat, Ski-Doo, Polaris

Art.-Nr.: 1153310



### RAVENOL SCOOTER 4-Takt Fullsynth.

API SN

Fully synthetic high performance green colored motor oil on the Basis of PAO for 4-stroke small engines.

Yamaha, Honda, Aprilia, Suzuki, Kawasaki, Peugeot, Arctic Cat, Bombardier, Argo, Dinli, Polaris

Art.-Nr.: 1151155



### RAVENOL Snowmobiles 4-Takt Fullsynth.

Fully synthetic 4-stroke motor oil, especially for 4-stroke snowmobiles.

Yamaha, Suzuki, Bombardier, Kawasaki, Arctic Cat, Ski-Doo, Polaris

Art.-Nr.: 1151311



### RAVENOL SCOOTER 4-Takt Teilsynth.

SAE 10W-40 API SL

Semi-synthetic high performance green colored motor oil for 4-stroke small engines.

Yamaha, Honda, Aprilia, Suzuki, Kawasaki, Peugeot, Arctic Cat, Bombardier, Argo, Dinli, Polaris

Art.-Nr.: 1152155



### RAVENOL Schneefräse 4-Takt

SAE 0W-30 API SL ACEA A3/B4

Fully synthetic 4-stroke motor oil, especially for 4-stroke snow blowers.

MTD, Honda, TORO, Yard-Man, CubCadet, Briggs&Stratton, McCulloch, Craftsman, Murray, Ariens, Caiman, Canadiana, Husqvarna, Partner, Snapper, Stiga, Swisher, White Outdoor

Art.-Nr.: 1151106



**RAVENOL Schneefräse 4-Takt**

SAE 5W-30      API SM/SL      ACEA A5/B5

High performance fully synthetic 4-stroke motor oil, especially for 4-stroke snowblowers.

MTD, Honda, TORO, Yard-Man, CubCadet, Briggs&amp;Stratton, McCulloch, Craftsman, Murray, Ariens, Caiman, Canadiana, Husqvarna, Partner, Snapper, Stiga, Swisher, White Outdoor

Art.-Nr.: 1151105

**RAVENOL 4-Takt Gardenoil HD**

SAE 30      API CD/SF

Mineral monograde 4-stroke motor oil specially developed for lawn-mower.

MB 227.0, MIL-L-46152 B, MIL-L-2104 D, Husqvarna, Honda, Stihl, Oleo-Mac, CCMC G4

Art.-Nr.: 1113301



## Marine Oils

The Ravensberger Schmierstoffvertrieb GmbH is a leading manufacturer of marine oils and lubricants. Under the brand name RAVENOL also high-tech lubricants for leisure and sports boats are made.

RAVENOL Marine and Outboard Oils are formulated specifically for marine use using specially selected base oils and additives.

Racing Team Germany, the only professional team in Germany, has been competing since 2009 with 20 other international teams in the Water-Formula 1 World Championship. The close partnership with Team Germany Racing allows RAVENOL to test oils under extreme racing conditions, to produce and develop products that exceed the latest requirements of modern boat engines.

In addition to this our Outboard oils are registered with the NMMA (National Marine Manufacturers Association). This register is divided into 2-stroke (TC-W3®) and 4-stroke (FC-W®) motor oils.





**RAVENOL MARINEOIL PETROL**

SAE 10W-40      API SL

Motor oil for use in marine gasoline engines.

VOLVO Penta AB, Mercruiser, Yanmar, Kohler

Art.-Nr.: 1162200

**RAVENOL MARINEOIL DIESEL SHPD**

SAE 10W-40      API CI-4/CF      ACEA E7, B4

Motor oil for use in marine diesel engines.

VETUS DEUTZ, Steyr, MTU, VOLVO PENTA, Caterpillar, IVECO, MAN, Mercruiser, PERKINS, NANNI Diesel, Yanmar, Detroit Diesel, SULZER, SKL

Art.-Nr.: 1162100

**RAVENOL MARINEOIL PETROL**

SAE 15W-40      API SL

Motor oil for use in marine gasoline engines.

VOLVO Penta AB, Mercruiser, Yanmar, Kohler

Art.-Nr.: 1163200

**RAVENOL MARINEOIL DIESEL SHPD**

SAE 15W-40      API CI-4/CF      ACEA E7, B4

Motor oil for use in marine diesel engines.

VETUS DEUTZ, Steyr, MTU, VOLVO PENTA, Caterpillar, IVECO, MAN, Mercruiser, PERKINS, NANNI Diesel, Yanmar, Detroit Diesel, SULZER, SKL

Art.-Nr.: 1163100

**RAVENOL MARINEOIL PETROL**

SAE 20W-50      API SL

Motor oil for use in marine gasoline engines.

VOLVO Penta AB, Mercruiser, Yanmar, Kohler

Art.-Nr.: 1163210

**RAVENOL MARINEOIL DIESEL SHPD**

SAE 20W-50      API CI-4      ACEA E7, B4

Motor oil for use in marine diesel engines.

VETUS DEUTZ, Steyr, MTU, VOLVO PENTA, Caterpillar, IVECO, MAN, Mercruiser, PERKINS, NANNI Diesel, Yanmar, Detroit Diesel, SULZER, SKL

Art.-Nr.: 1163110

**RAVENOL MARINEOIL PETROL**

SAE 25W-40      NMMA FC-W

Modern mineral based high additive treated marine engine oil. It is suitable for inboard and outboard marine gasoline engines.

Yamaha, Honda, Suzuki, YANMAR, Mercruiser, VOLVO Penta AB, Kohler, Johnson, Mercury, Evinrude

Art.-Nr.: 1163220

**RAVENOL MARINEOIL DIESEL SHPD**

SAE 25W-40      API CF

Modern mineral based high additive treated marine engine oil with special additives. It is suitable for inboard marine diesel engines.

VETUS DEUTZ, MTU, Steyr, Caterpillar, MAN, PERKINS, NANNI Diesel, Detroit Diesel, Mercruiser, IVECO, SKL, SULZER, VOLVO PENTA

Art.-Nr.: 1163215

**RAVENOL MARINEOIL PETROL SYNTHETIC**

SAE 25W-40      API SL      ACEA E7, B4

Synthetic motor oil for use in marine gasoline engines.

VETUS DEUTZ, Steyr, MTU, VOLVO, PENTA, Caterpillar, IVECO, MAN, Mercruiser, PERKINS, NANNI Diesel, YANMAR, Detroit Diesel, SULZER, SKL

Art.-Nr.: 1162115

**RAVENOL MARINEOIL DIESEL SHPD Synthetic**

SAE 25W-40      API CI-4/CF      ACEA E7, B4

Fully synthetic engine oil with unconventional and HC basic oils, synthetic components and modern additives for the use in marine diesel engines.

VETUS DEUTZ, MTU, Steyr, Caterpillar, MAN, PERKINS, NANNI Diesel, Detroit Diesel, Mercruiser, IVECO, SKL, SULZER, VOLVO PENTA

Art.-Nr.: 1162105





### RAVENOL MARINE Gear Lube

API GL-5

Gear oil for use in marine transmissions.

OMC, Volvo Penta, Mercruiser, Yanmar

Art.-Nr.: 1233100



### RAVENOL Outboardoil 4T

SAE 10W-30 NMMA FC-W

Semi-synthetic specifically formulated Outboard 4-stroke motor oil acc. to NMMA FC-W.

NMMA FC-W® FB-83140K, Mercury Verado, Yamaha, Suzuki, Honda, Johnson/Evinrude, Tohatsu/Nissan

Art.-Nr.: 1153203



### RAVENOL MARINE PowerTrim&Steering Fluid

Hydraulic oil for lubricating hydraulics in marine equipment.

OMC, Volvo Penta, Mercruiser, Yanmar

Art.-Nr.: 1234100



### RAVENOL Outboardoil 4T

SAE 10W-40 NMMA FC-W

Semi-synthetic specifically formulated Outboard 4-stroke motor oil acc. to NMMA FC-W.

NMMA FC-W® FB-83139K, Mercury Verado, Yamaha, Suzuki, Honda, Johnson/Evinrude, Tohatsu/Nissan

Art.-Nr.: 1153204



### RAVENOL Outboardoil 2T Fullsynth.

API TD NMMA TC-W3

Fully synthetic specifically formulated Outboard 2-stroke motor oil with special esters and Polyisobutylene (PIB). Perfect lubrication and wear protection due to special Low-Ash additives. Suitable for separate-lubrication and self-mixing systems. Recommended mixture: max. 1:100.

NMMA TC-W3® RL-90001G, Yamaha, Suzuki, Tohatsu, Johnson, Evinrude, Mercury and Selva

Art.-Nr.: 1151200



### RAVENOL Outboardoil 4T

SAE 15W-40 NMMA FC-W

Mineral specifically formulated Outboard 4-stroke motor oil acc. to NMMA FC-W.

NMMA FC-W® FB-83138, Mercury Verado, Yamaha, Suzuki, Honda, Johnson/Evinrude, Tohatsu/Nissan

Art.-Nr.: 1153205



### RAVENOL Outboardoil 2T Teilsynth.

API TC NMMA TC-W3

Semi-synthetic specifically formulated Outboard 2-stroke motor oil with special esters and Polyisobutylene (PIB). Perfect lubrication and wear protection due to special Low-Ash additives. Suitable for separate-lubrication and self-mixing systems. Recommended mixture: max. 1:75.

NMMA TC-W3® RL-29018F, Yamaha, Suzuki, Tohatsu, Johnson, Evinrude, Mercury and Selva

Art.-Nr.: 1152200



### RAVENOL Outboardoil 4T

SAE 25W-40 NMMA FC-W

Mineral specifically formulated Outboard 4-stroke motor oil acc. to NMMA FC-W.

NMMA FC-W® FB-80812K, Mercury Verado, Yamaha, Suzuki, Honda, Johnson/Evinrude, Tohatsu/Nissan

Art.-Nr.: 1153207



### RAVENOL Outboardoil 2T Mineral

API TB NMMA TC-W3

Mineral specifically formulated Outboard 2-stroke motor oil. Perfect lubrication and wear protection due to special Low-Ash additives. Suitable for separate-lubrication and self-mixing systems. Recommended mixture: max. 1:50.

NMMA TC-W3® RL-90000G, Yamaha, Suzuki, Tohatsu, Johnson, Evinrude, Mercury and Selva

Art.-Nr.: 1153200



### RAVENOL Watercraft Fullsynth. 2-Takt

API TD, ISO-L-EGD JASO FC, NMMA TC-W3

Fully synthetic motor oil for outboard engines in water vehicles. Recommended mixture: max. 1:100.

NMMA TC-W3® RL-29019G

Art.-Nr.: 1151210





### RAVENOL Watercraft Teilsynth. 2-Takt

API TC, ISO-L-EGC JASO FC, NMMA TC-W3

Semi-synthetic motor oil for outboard engines in water vehicles.  
Recommended mixture: max. 1:75.

NMMA TC-W3® RL-30010H, Yamaha CE 50S, Mercury

Art.-Nr.: 1152210



### RAVENOL MARINE 1230 TBN12

SAE 30 API CF MIL-L-2104C

Mineral diesel engine oil used for high and medium speed marine diesel engines with or without turbo-charging. This oil can also be used in shipboard transfer boxes due to its load-carrying properties.

DEF STAN 91-22/2

Art.-Nr.: 1163010



### RAVENOL Watercraft Mineral 2-Takt

API TB, ISO-L-EGB NMMA TC-W3

Mineral motor oil for outboard engines in water vehicles.  
Recommended mixture: max. 1:50.

NMMA TC-W3® RL-29901H

Art.-Nr.: 1153210



### RAVENOL MARINE 1240 TBN12

SAE 40 API CF MIL-L-2104C

Mineral diesel engine oil used for high and medium speed marine diesel engines with or without turbo-charging. This oil can also be used in shipboard transfer boxes on boats.

DEF STAN 91-22/2

Art.-Nr.: 1163011



### RAVENOL Watercraft 4-Takt

API SG NMMA FC-W

Fully synthetic motor oil for 4-stroke outboard engines in fresh water cooled 4-stroke water vehicle engines.

Mercury Verado, Yamaha, Suzuki, Honda, Johnson/Evinrude, Tohatsu/Nissan

Art.-Nr.: 1151211



### RAVENOL MARINE 1630 TBN16

SAE 30 API CF MIL-L-2104C

Mineral diesel engine oil used for high and so-called "medium speed" marine diesel engines with or without turbo-charging. This oil can also be used in shipboard transfer boxes on boats.

DEF STAN 91-22/2

Art.-Nr.: 1163020



### RAVENOL MARINE 830 TBN8

SAE 30 API CC MIL-L-2104A

Mineral diesel engine oil used in slowly running crosshead diesel engines and as an engine oil in easy loaded engines of the coasting and inland navigation.

DEF 2101D, FZG 8

Art.-Nr.: 1163001



### RAVENOL MARINE 1640 TBN16

SAE 40 API CF MIL-L-2104C

Mineral diesel engine oil used for high and so-called "medium speed" marine diesel engines with or without turbo-charging. This oil can also be used in shipboard transfer boxes on boats.

DEF STAN 91-22/2

Art.-Nr.: 1163021



### RAVENOL MARINE 840 TBN8

SAE 40 API CC MIL-L-2104A

Mineral diesel engine oil used in slowly running crosshead diesel engines and as an engine oil in easy loaded engines of the coasting and inland navigation.

DEF 2101D, FZG 8

Art.-Nr.: 1163002



## Power Steering Oils, Special Hydraulic Fluids

RAVENOL special hydraulic fluids have been developed for use in a variety of applications such as self-levelling and hydro pneumatic suspension systems, power steering systems, dampers etc.. Each is carefully blended to match as closely as possible the required specifications of the unit or vehicle manufacturer. The specific formulations provide excellent low temperature characteristics and are therefore very suitable for use in cold climates.



### RAVENOL LHM+ Fluid

ISO: 7308      DIN 51 524 Part 2

Special hydraulic fluid designed for use in vehicles of the PSA group (Citroën, Peugeot).

PSA Standard B 71 2710

Art.-Nr.: 1181110



### RAVENOL GHA-F Gearbox Hydraulic Actuator Fluid

Special hydraulic oil for electrohydraulic actuators based on synthetic and mineral oil with ashless additives. For use in MCP electronically controlled transmissions of Peugeot/Citroën and Dualogic and Selespeed gearboxes of FIAT/Alfa Romeo. Optimum performance in electro-hydraulic and electronically controlled drives and circuit boards.

Peugeot/Citroën 9979.A4 for MCP Automated Gearbox, FIAT/Alfa Romeo 15081616  
CS SPEED for Dualogic and Selespeed Gearbox, FIAT 9.55550-SA1 Nr. F005.F98

Art.-Nr.: 1181201



### RAVENOL Hydraulik PSF Fluid

Special synthetic hydraulic fluid for servo steering.

Honda PSF-S, Hyundai PSF-3, KIA PSF-III, Mazda PSF, Subaru PS Fluid, TOYOTA PSF-EH,  
CITROËN/PEUGEOT 9735EJ for C-Crosser and PEUGEOT 4007, MITSUBISHI DIAMOND PSF-2M

Art.-Nr.: 1181000



### RAVENOL E-PSF Fluid

Special fully synthetic fluid for use in electro hydraulic servo steering of electric vehicles.

Nissan E-PSF, Nissan 999MP-EPSFOOP, KLF51-00001 JTEKT EHS Elektro-Hydraulik Servolenkung (EHPS Electro-HydraulicPower Steering) Toyota PSF-EH, Toyota 08886-01206

Art.-Nr.: 1181002



### RAVENOL PSF-Y Fluid

Fully synthetic servo steering fluid for Volkswagen, Mercedes and Chrysler.

VW G009300A2, Mercedes A0009898803, Chrysler 05098158A, MS-5931, MS-9933,  
04883077, GM 9985010, 89020661, 1050017, Texaco TL 4634, HONDA 08206-9002,  
08285-P99-01Z-T1

Art.-Nr.: 1211123



### RAVENOL SSF Special Servolenkung Fluid

ISO: 7308      DIN 51 524 Part 2

Special hydraulic fluid for use as a central hydraulic fluid in power steering, level control, hydraulic brake booster, hydro-pneumatic suspension. For VW, Audi, Seat, Skoda.

VW TL 521 46 (G002 000, G004 000 M2), MB 343.0 / MB 344.0 / 345.0, CHF11S, CHF202,  
Opel 1940 715, Opel 1940 766, Ford M2C204-A2, Ford 1 384 110, ZF TE-ML 02K, SAAB  
93160548, BMW 83 29 0 429 576, Citroën 9979 A1, Land Rover Cold Climate PAS Fluid  
14315 LRN2261, VOLVO 30741424, Hyundai/Kia PSF-4 03100-00130, Toyota PSF NEW-W,  
Toyota 08886-01115

Art.-Nr.: 1181100



# Hydraulic Fluids

The most commonly used hydraulic fluids are produced using high quality mineral base oils blended with carefully selected additives. The requirements for these hydraulic fluids are to be found under ISO 6743/4 with the prefixes HL, HM, HV. In Germany, the prefixes H, HL, HLP, HVLP are used according to DIN 51 524.

**H:** without additives, corresponding to the lubricating oils according to DIN 51 517. These hydraulic fluids are hardly used today.

**HL:** with additives to increase corrosion protection and aging (also HL according to DIN 51 524, Part 1). They are used at pressures up to 200 Bar and meet the required thermal loads.

**HLP:** with additives to increase corrosion protection, enhance resistance to aging and reduce scoring in areas of mixed friction (in accordance with DIN 51 524, Part 2).

**HVLP:** with additives to increase corrosion protection, enhance resistance to aging, reduce scoring in areas of mixed friction and improve viscosity-temperature characteristics (according to DIN 51 524, Part 3).

**HLPD:** with additives to increase corrosion protection, aging resistance and improved detergency (German designation, not standardized)



## RAVENOL Hydrauliköl TS

HLP DIN 51 524 Part 2

Mineral hydraulic oil. Wide range of industrial applications.

Vickers-Pump-Test, DENISON HF-2, HF-O, MIL-H 24 459, AFNOR NFE 48 603 HM, HV, SIS SS 155434, Denison Filterability TP 02100, Hoesch HWN 2333, U.S. Steel 126 u. 127, CETOP RP 91 H (HM, HV), Sperry Vickers M-2950-S u. I-286-S, FZG 12, Cincinnati Milacron P-68, 69, 70, MIL-H 24 459, Eickhoff, Voith

|                   |            |
|-------------------|------------|
| Art.-Nr.: 1323101 | ISO VG 10  |
| Art.-Nr.: 1323102 | ISO VG 15  |
| Art.-Nr.: 1323103 | ISO VG 22  |
| Art.-Nr.: 1323104 | ISO VG 32  |
| Art.-Nr.: 1323105 | ISO VG 46  |
| Art.-Nr.: 1323106 | ISO VG 68  |
| Art.-Nr.: 1323107 | ISO VG 100 |



## RAVENOL Hydrauliköl TSX

HVLP DIN 51 524 Part 3

Mineral hydraulic oil with high viscosity index (VI). Excellent for heavy loaded hydraulic plants in industry, earth moving machinery and agricultural machines.

ISO 6743/4-HV, FZG 12, Sperry Vickers M-2950-S, 1-286-S, Vickers Vane Pump, Denison HF-1, HF-O, HF-2, Cincinnati Milacron P68 (HM-32), P69 (HM-68), P70 (HM-46), CETOP RP 91H-HV, General Motors LH-04-1, LH-06-1, LH-15-1, AFNOR 48 603 HV, US Steel 136, 127

|                   |            |
|-------------------|------------|
| Art.-Nr.: 1323202 | ISO VG 15  |
| Art.-Nr.: 1323203 | ISO VG 22  |
| Art.-Nr.: 1323204 | ISO VG 32  |
| Art.-Nr.: 1323205 | ISO VG 46  |
| Art.-Nr.: 1323206 | ISO VG 68  |
| Art.-Nr.: 1323207 | ISO VG 100 |



## RAVENOL Hydrauliköl HLP-D

HLPD DIN 51 524 Part 2

Hydraulic oil HLPD for use in agricultural, construction and plant machinery.

MAN N 698, DENISON HF-O

|                   |           |
|-------------------|-----------|
| Art.-Nr.: 1323303 | ISO VG 22 |
| Art.-Nr.: 1323304 | ISO VG 32 |
| Art.-Nr.: 1323305 | ISO VG 46 |



## RAVENOL Hydrauliköl TS AF 32, 46, 68

HLP DIN 51 524 Part 2

High quality zinc-and ash-free hydraulic oil, alloyed on sulfur/phosphorus-basis, which has been designed specifically for use in the metal industry.

SEB 181.222, 181.226, Vickers-Pumptest, Timken-Test acc. to DIN E 51434, MAN N 698, FZG-Test A 8,3/90: 12. Loadstep

|                   |           |
|-------------------|-----------|
| Art.-Nr.: 1323124 | ISO VG 32 |
| Art.-Nr.: 1323125 | ISO VG 46 |
| Art.-Nr.: 1323126 | ISO VG 68 |



## RAVENOL Frostlube F 12, 22, 32

ISO 6743/4-HV

High quality, anti-wear hydraulic oil with a very high viscosity index, good shear stability and excellent low-temperature properties for application in extremely low temperatures, e.g. equipment in refrigerated warehouses or mobile facilities, which are used outdoors under extreme winter conditions.

|                   |           |
|-------------------|-----------|
| Art.-Nr.: 1323350 | ISO VG 12 |
| Art.-Nr.: 1323351 | ISO VG 22 |
| Art.-Nr.: 1323352 | ISO VG 32 |



## RAVENOL Bio-Hydrauliköl (auf Esterbasis)

HEES VDMA 24568

Bio-hydraulic oil based on esters. Use in hydraulic systems of sewage treatment plants, dredgers and dredging, hydraulic lock and river weirs, pipes and tunneling, hydraulic power packs in the woods and fields, earth moving equipment in water, forestry equipment.

ISO 15380

|                   |           |
|-------------------|-----------|
| Art.-Nr.: 1321104 | ISO VG 32 |
| Art.-Nr.: 1321105 | ISO VG 46 |
| Art.-Nr.: 1321106 | ISO VG 68 |



## Industrial Oils, Specialties

RAVENOL industrial oils and special lubricants have been developed in our own modern laboratory to meet the requirements of today's high-performance machines and units. Increasing utilization and higher efficiency requirements lead to higher speeds and loads. The result is a growing demand on the lubricant. RAVENOL industrial oils and specialties are more than capable of withstanding this increased demand with the superior properties of these lubricants far exceeding the specifications and

requirements of the machine manufacturer. The resulting extended oil change intervals allow a significant reduction in maintenance down times and resulting costs. RAVENOL industrial oils and special lubricants cover a wide range of applications and with their ability to allow extended periods of use under heavy loads ensure optimum wear resistance under all conditions. RAVENOL industrial oils improve both performance and profitability whilst increasing the service life of the machines and equipment.



### RAVENOL DOT 4

ISO 4925 FMVSS 116 DOT 4

Brake fluid for all vehicles with ABS-Characteristics.

SAE J1704

Art.-Nr.: 1350601



### RAVENOL DOT 5.1

ISO 4925 FMVSS 116 DOT 5.1

Brake fluid for all vehicles with ABS-Characteristics.

SAE J1704

Art.-Nr.: 1350602



### RAVENOL Calibration Fluid

ISO 4113

Test fluid for the calibration of diesel injection pump and corrosion protection for inside conservation of fuel systems.

SAE J 967D, MB 133.0, MTU

Art.-Nr.: 1350130



### RAVENOL Calibration Fluid 2.5

ISO-Norm 4113-CV-AW

Test fluid for the calibration of diesel injection pumps from Bosch (VS 15665-OL-CV), MTU, MAN and Volkswagen, as corrosion preventive oil for the internal preservation or conservation of fuel systems from MTU, Lucas CAV, MB DBL 6513.

Art.-Nr.: 1350131



### RAVENOL Getriebeöl CLP

DIN 51 517 Part 3, FZG 12, US Steel 224

CLP Gearoil for the use in industrial gearboxes.

CLP 150: AGMA 9005-D94, Cincinnati Milacron, Clean Panel Coker, S-200 Oxidation Tube-CLP 320: Eickhoff, LOVAT LOV-204

|                   |            |
|-------------------|------------|
| Art.-Nr.: 1332106 | ISO VG 68  |
| Art.-Nr.: 1332107 | ISO VG 100 |
| Art.-Nr.: 1332108 | ISO VG 150 |
| Art.-Nr.: 1332109 | ISO VG 220 |
| Art.-Nr.: 1332110 | ISO VG 320 |
| Art.-Nr.: 1332111 | ISO VG 460 |
| Art.-Nr.: 1332112 | ISO VG 680 |



### RAVENOL Getriebeöl PAO CLP 150, 220, 320, 460, 680

DIN 51 517 Teil 3, US Steel 224

Premium performance, extreme pressure lubricant designed for enclosed industrial gears and bearings operating under severe load conditions and in wide extremes of temperature.

Flender Industrial Gear, Eickhoff Gear, Jahnle Kestermann, AGMA 9005-E02 (EP), David Brown S1.53.101 Type E, Cincinnati Machine P-74, GE787/788 and GA880

|                   |            |
|-------------------|------------|
| Art.-Nr.: 1332208 | ISO VG 150 |
| Art.-Nr.: 1332209 | ISO VG 220 |
| Art.-Nr.: 1332210 | ISO VG 320 |
| Art.-Nr.: 1332211 | ISO VG 460 |
| Art.-Nr.: 1332212 | ISO VG 680 |



### RAVENOL Kompressorenöl VDL

VDL 51 506

Use in stationary and mobile compressors, lubrication of engines and diesel engines.

ATLAS COPCO, ABAC, ALUP, CompAir, FIAC, FINI, KAESER

|                   |            |
|-------------------|------------|
| Art.-Nr.: 1330100 | ISO VG 100 |
| Art.-Nr.: 1330101 | ISO VG 150 |
| Art.-Nr.: 1330102 | ISO VG 220 |



### RAVENOL Wärmeträgeröl 32

Mineral heat transfer oil.

Art.-Nr.: 1330210



### RAVENOL Traföl 1000P

IEC 60296 (03)

Insulating oil for transformers and switches.

Art.-Nr.: 1330201



**RAVENOL Gatteröl**

ISO VG 320

Adhesive-capable lubricating oil for use in (open) bearings from metal finishing industries, as well as textile, packaging and web presses.

Art.-Nr.: 1350370

**RAVENOL Vakuumpumpenöl ISO VG**

ISO 6743-3 DVA and DVC

DIN 51 506 VC

Vacuum pump oil.

Vickers Vane Pump, AFNOR NF E 48-603 (HM, HV), Leybold-Heraeus 175, Edwards Ultra-grade 19, Alcatel 100, 119 and 120, PVR Rotant, Becker vacuum pumps, Hyvac 93055, Ulvac 100, BUSCH VM and VMH, Balzers P3, Kinney Type A, Beckmann 19, Fisherbrand 19, SAVANT SPO-1

Art.-Nr.: 1330704 ISO VG 32  
 Art.-Nr.: 1330705 ISO VG 46  
 Art.-Nr.: 1330706 ISO VG 68  
 Art.-Nr.: 1330707 ISO VG 100  
 Art.-Nr.: 1330708 ISO VG 150

**RAVENOL Kältemaschinenöl K**

DIN 51 503 Gruppe KAA

Compressor oil for the lubrication of refrigerating machines.

Art.-Nr.: 1331104 ISO VG 32  
 Art.-Nr.: 1331105 ISO VG 46  
 Art.-Nr.: 1331106 ISO VG 68

**RAVENOL Getriebeöl Glycosynth Gear**

DIN 51 517 Part 3, FZG 12

Synthetic industrial gear oil for the lubrication of heavy loaded mechanical gearboxes and bearings with a high thermal load.

Art.-Nr.: 1332308 ISO VG 150  
 Art.-Nr.: 1332309 ISO VG 220  
 Art.-Nr.: 1332310 ISO VG 320

**RAVENOL Kältemaschinenöl PAO**

DIN 51 503 Gruppe KAA/KC/KE

Refrigeration oil for use in all types of refrigeration compressors such as piston, screw and centrifugal compressors. For dry and flooded evaporator.

Art.-Nr.: 1331255 ISO VG 46  
 Art.-Nr.: 1331256 ISO VG 68  
 Art.-Nr.: 1331259 ISO VG 220

**RAVENOL Bettbahnöl**

DIN 51 502 CGLP

Way-sliding oil for heavy-duty performance.

Art.-Nr.: 1350374 ISO VG 32  
 Art.-Nr.: 1350375 ISO VG 46  
 Art.-Nr.: 1350376 ISO VG 68  
 Art.-Nr.: 1350377 ISO VG 150  
 Art.-Nr.: 1350378 ISO VG 220

**RAVENOL Kältemaschinenöl POE**

Compressor oil for the lubrication of refrigerating machines.

HFC 134a, R 404a, R 507

Art.-Nr.: 1331202 ISO VG 15  
 Art.-Nr.: 1331203 ISO VG 22  
 Art.-Nr.: 1331204 ISO VG 32  
 Art.-Nr.: 1331205 ISO VG 46  
 Art.-Nr.: 1331206 ISO VG 68  
 Art.-Nr.: 1331207 ISO VG 100

**RAVENOL Turbinenöl T**

ISO 6743-0

DIN 51 515 L-TD

High quality turbine oil.

BS 489

Art.-Nr.: 1330354 ISO VG 32  
 Art.-Nr.: 1330355 ISO VG 46  
 Art.-Nr.: 1330356 ISO VG 68  
 Art.-Nr.: 1330357 ISO VG 100

**RAVENOL Umlauföl NB-E**

Recirculating oil.

DIN 51 524 Part 1, Cat. HL, DIN 51 517 Part 2, Cat. CL, DIN 51 506 VBL/VCL

Art.-Nr.: 1333003 ISO VG 22  
 Art.-Nr.: 1333004 ISO VG 32  
 Art.-Nr.: 1333005 ISO VG 46  
 Art.-Nr.: 1333006 ISO VG 68  
 Art.-Nr.: 1333007 ISO VG 100  
 Art.-Nr.: 1333008 ISO VG 150  
 Art.-Nr.: 1333009 ISO VG 220  
 Art.-Nr.: 1333010 ISO VG 320  
 Art.-Nr.: 1333011 ISO VG 460



**RAVENOL Sägekettööl S 85**

Chainsaw oil.

Art.-Nr.: 1350300

**RAVENOL Super Sägekettööl**

Readily biodegradable chainsaw oil.

"Blauer Engel" acc. to RAL-ZU 48, KWF-Test with test-no. 4934.

Art.-Nr.: 1350301

**RAVENOL Feinmechaniköl**

Universal fluid for bicycles, sewing machines, household and office applications, locks, tool, etc..

Art.-Nr.: 1350360

# OEM-Specifications

## Engine Oils

| BMW                       |                                                                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Longlife-01 (LL-01)       | Engine oil for all older gasoline engines, minimum requirement from MY 2002                                                                                                                                                       |
| Longlife-04 (LL-04)       | Engine oil for all Diesel engines in certain areas with or without particulate filter                                                                                                                                             |
| Longlife-01 FE (LL-01 FE) | Engine oil for certain newer gasoline engines from MY 2001                                                                                                                                                                        |
| Longlife-12 FE (LL-12 FE) | Engine oil for certain Diesel engines from MY 2013                                                                                                                                                                                |
| Mercedes-Benz             |                                                                                                                                                                                                                                   |
| MB 226.9                  | Multigrade engine oil for gas engines (CNG) based on BR 300/400.                                                                                                                                                                  |
| MB 228.0/1                | Motoroil for Diesel engines. Increased requirement according to ACEA E2, SHPD motoroil with normal performance 228.0: single grade oil / 228.1: multigrade oil.                                                                   |
| MB 228.2/3                | SHPD Motoroil for high-loaded Dieselenines with increased requirement according to ACEA E7, extended oil change intervalls up to 45000 km. 228.2: single grade oil / 228.3: multigrade oil.                                       |
| MB 228.31                 | Multigrade engine oil for Dieselenines in commercial vehicles and busses, with or without particulate filter.                                                                                                                     |
| MB 228.5                  | UHPD-engineoil (Ultra High Performance Diesel) for high loaded Dieselenines, extended oil change intervalls up to 45000 km in lightweight class. In the heavy class are up to 160,000 km are possible (service interval display). |
| MB 228.51                 | UHPD engine oils acc. MB 228.5 with specific requirements for diesel particular filters for EURO IV, LOW SPAsH technology.                                                                                                        |
| MB 229.1                  | Multigrade motor oils for passenger cars (petrol and diesel engines). Increased requirements acc. ACEA A3-04 and B3-04 release.                                                                                                   |
| MB 229.3                  | Multigrade motor oils for passenger cars, highest performance for diesel engines.                                                                                                                                                 |
| MB 229.31                 | Multigrade motor oils for passenger cars with diesel particular filter. LOW SPAsH technology.                                                                                                                                     |
| MB 229.5                  | Multigrade motor oils for passenger cars with extended oil change intervals (20,000 km), reduced exhaust emissions.                                                                                                               |
| MB 229.51                 | Multigrade motor oils for diesel engines with extended oil change intervals and service interval display. LOW SPAsH technology. Increased requirements acc. to ACEA A3-04, B4-04, C3-04.                                          |
| Volkswagen/Audi           |                                                                                                                                                                                                                                   |
| VW 502 00                 | For car gasoline engines with extended oil change intervals, replaces VW 501 01 and 500 00.                                                                                                                                       |
| VW 503 00                 | For car gasoline engines with extended oil change intervals, exceeds the requirements of VW 502 00 (HTHS 2.9 mPa*s).                                                                                                              |
| VW 503 01                 | Oils for turbocharged car gasoline engines with extended service intervals (HTHS > 3.5 mPa*s).                                                                                                                                    |
| VW 504 00                 | VW-Norm for engines of Longlife-Service. Gasoline engines replaces VW Norm 503 00 and 503 01.                                                                                                                                     |
| VW 505 00                 | All-season engine oils for diesel engines with or without turbocharging.                                                                                                                                                          |
| VW 505 01                 | All-season oils of SAE5W40 especially for Unit Pump diesel engines from model year 2000.                                                                                                                                          |
| VW 506 00                 | Multigrade oils for diesel engines with extended service intervals (HTHS > 2.9 mPa*s).                                                                                                                                            |
| VW 506 01                 | Oils for Unit Pump diesel engines with extended service intervals. Surpasses the requirements of VW 505 01 (WIV).                                                                                                                 |
| VW 507 00                 | New VW-Norm for engines of Longlife-Service. Gasoline and diesel engines with DPF (Diesel Particular Filter).                                                                                                                     |



| Porsche      |                                                                                                                                                                                                                                        |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A40          | Porsche Specification (acc. to Porsche Vehicle from Model 1994) for racing cars, Panamera S/Turbo, Cayenne S/Turbo/GTS SAE 0W-40, SAE 5W-40, SAE 5W-50, Cayenne (V6) SAE 0/5W-40 - not for longdrain-, not allowed for Cayenne Diesel. |
| C30          | Porsche Specification (acc. to VW 504 00/507 00) only Cayenne (V6) SAE 5W-30 - not for China-, Cayenne Diesel SAE 5W-30.                                                                                                               |
| MAN          |                                                                                                                                                                                                                                        |
| MAN 270      | Diesel engine oil, monograde.                                                                                                                                                                                                          |
| MAN 271      | Multigrade diesel engine oil.                                                                                                                                                                                                          |
| MAN M 3275   | SHPD engine oil (Super high performance diesel), extended oil drain up to 45.000 km.<br>M 3275-1: Multigrades engine oil/M 3275-2: Monogrades engine oil.                                                                              |
| MAN M 3277   | Ultra high performance diesel engine oil. UHPD, extended oil drain up to 80.000 km.                                                                                                                                                    |
| MAN M 3477   | Mega high performance diesel engine oil. MHPD, low ash, exhaust aftertreatment.                                                                                                                                                        |
| MAN M 3271-1 | Gas engine oil (stationary engines).                                                                                                                                                                                                   |
| MAN M 3575   | Super high performance diesel engine oil.                                                                                                                                                                                              |
| Opel         |                                                                                                                                                                                                                                        |
| GM-LL A-025  | Gasoline vehicles with long oil drain intervals.                                                                                                                                                                                       |
| GM-LL B-025  | Diesel vehicles with long oil drain intervals.                                                                                                                                                                                         |
| dexos2™      | GM-Specification for gasoline and diesel engines.                                                                                                                                                                                      |

## Gear oils for manual transmissions

| Mercedes-Benz |                                                                                            |
|---------------|--------------------------------------------------------------------------------------------|
| MB 235.0      | Hypoid gear oil only for SAE 90, 85W-90 Oils acc. API GL-5.                                |
| MB 235.1      | Oils of SAE 80W, 80W-85, 85W-90, meets API GL-4.                                           |
| MB 235.4      | Fully synthetic oils of SAE 75W-85, meets API GL-4 (another sheet – MB 235.1).             |
| MB 235.5      | Oils as of sheet MB 235.1 but with extended oil change interval.                           |
| MB 235.6      | Oils as of sheet MB 235.0 but with extended oil change interval.                           |
| MB 235.7      | Oils of SAE 85W-90, meets API GL-5.                                                        |
| MB 235.8      | Fully synthetic oils of SAE 75W-90, meets API GL-5.                                        |
| MB 235.9      | Special fully synthetic oils of SAE 75W-90 for gear-box AG 4. MB gear oils A 001 989 2503. |
| MB 235.10     | Special semi-synthetic oils of SAE 75W-80, meets API GL-4. MB gear oils A 001 989 2603.    |
| MB 235.11     | Special fully synthetic oils of SAE 75W-90, meets API GL-4. MB gear oils A 001 989 2803.   |
| MB 235.12     | Motor oils SAE 30, SAE 40 used as gear oils in tropical climate.                           |
| MB 235.13     | Fully synthetic gear oils for LKW-gear boxes SAE 50.                                       |
| MB 235.15     | Hypoid oils SAE 75W-85 for reduction gear of rear axle Type 164.                           |
| MB 235.20     | Commercial vehicle hypoid gear oil mineral oil (Specification 235.20).                     |
| MB 235.27     | Commercial vehicle retarder oils, category Voith A.                                        |
| MB 235.28     | Commercial vehicle retarder oils, category Voith B (Specification 235.28).                 |
| MB 235.29     | Commercial vehicle retarder oils, category Voith C (Specification 235.29).                 |
| MB 235.61     | Fully synthetic gear oil SAE 75W-140 for AMG.                                              |

| Volkswagen              |                                                                                 |
|-------------------------|---------------------------------------------------------------------------------|
| VW 501 50               | Special oils for gear-box.                                                      |
| G 052                   | Oil types SAE 75W-90, Nr. G 052 911 A, G 052 180 A2, G 052 190 A2, G 052 175 A1 |
| MAN                     |                                                                                 |
| MAN 341 Type VR         | High pressure gear oil. Vickers, Eaton-Fuller.                                  |
| MAN 341 Type Z2, Z4, Z5 | High pressure gear oil. ZF.                                                     |
| MAN 341 Type E1-4       | High pressure gear oil. Eaton-Fuller.                                           |
| MAN 342 Type M1-3       | Extreme pressure gear oil.                                                      |
| MAN 342 Type S1         | Extreme pressure gear oil.                                                      |
| MAN 3343 Type M         | Multipurpose gear oil.                                                          |
| MAN 3342 Type S         | Multipurpose gear oil.                                                          |

## Automatic Transmission Fluids

| Mercedes-Benz     |                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| MB 236.1          | Automatic Transmission Fluid corresponding DEXRON III (before DEXRON DII).                                                                              |
| MB 236.2          | Automatic Transmission Fluid corresponding Type A Suffix A, except front gear vehicles of A-Class.                                                      |
| MB 236.3          | Automatic Transmission Fluid corresponding DEXRON III (before DEXRON II).                                                                               |
| MB 236.5          | Automatic Transmission Fluid corresponding specification Allison C4.                                                                                    |
| MB 236.6/236.7    | Automatic Transmission Fluid corresponding DEXRON III (before DEXRON DII).                                                                              |
| MB 236.8          | Automatic Transmission Fluid corresponding DEXRON II-E, Allison C4, ZF TE-ML 14.                                                                        |
| MB 236.81         | Automatic Transmission Fluid corresponding ZF TE-ML 09, 14.                                                                                             |
| MB 236.9          | Automatic Transmission Fluid corresponding DEXRON F III.                                                                                                |
| MB 236.10         | Special oil of MB 001 989 21 03 for automatic transmission with gear-clutch-lock.                                                                       |
| MB 236.11         | Special oil of MB 001 989 22 03 for automatic transmission ZF 4 HP 20 and VW AG4.                                                                       |
| MB 236.12         | Special oil for 7-stepped gearing.                                                                                                                      |
| MB 236.13         | Service Automatic Transmission Fluid.                                                                                                                   |
| MB 236.14         | ATF Transmission Oils for 5-speed automatic transmission with controlled torque converter clutch (gear-clutch-lock) and 7-speed automatic transmission. |
| MB 236.15         | Automatic Transmission Fluid corresponding DEXRON III (before DEXRON II).                                                                               |
| MB 236.20         | Transmission Fluid for CVT.                                                                                                                             |
| MB 236.91         | Automatic Transmission Fluid corresponding Allison transmission .                                                                                       |
| MAN               |                                                                                                                                                         |
| MAN 339 Type V1-2 | Type V1-2 Automatic transmission fluid. Vickers.                                                                                                        |
| MAN 339 Type Z1-4 | Type Z1-4 Automatic transmission fluid. ZF.                                                                                                             |
| ZF                |                                                                                                                                                         |
| TE-ML 01          | Manual transmissions for trucks and buses with "TE-ML 01" entry on the type plate.                                                                      |
| TE-ML 02          | Manual and automatic transmissions for trucks, buses and light commercial vehicles with "TE-ML 02" entry on the type plate.                             |
| TE-ML 03          | Converter transmissions for off-road equipment (off-road vehicles, special vehicles, lift truck).                                                       |
| TE-ML 04          | Marine transmissions.                                                                                                                                   |



|          |                                                                                            |
|----------|--------------------------------------------------------------------------------------------|
| TE-ML 05 | Axles for off-road vehicles.                                                               |
| TE-ML 06 | Tractor transmissions and hydraulic lifts.                                                 |
| TE-ML 07 | Hydrostatic-mechanical and electric drive systems.                                         |
| TE-ML 08 | Steering systems (non-power-assisted) for cars, commercial vehicles and off-road vehicles. |
| TE-ML 09 | Steering systems and oil pumps for cars, commercial vehicles and off-road vehicles.        |
| TE-ML 11 | Manual transmissions, double-clutch transmissions and automatic transmissions for cars.    |
| TE-ML 12 | Axles and wheel heads for buses and trucks.                                                |
| TE-ML 13 | ZF assemblies in special purpose vehicles.                                                 |
| TE-ML 14 | Powershift transmissions, type Ecomat, for buses, trucks, and special vehicles.            |
| TE-ML 15 | Brake systems for special vehicles.                                                        |
| TE-ML 16 | Transmissions for rail vehicles.                                                           |
| TE-ML 17 | Transmissions and axles for lift-trucks.                                                   |
| TE-ML 18 | Axles for cars.                                                                            |
| TE-ML 19 | Transfer and offset transmissions for commercial vehicles.                                 |
| TE-ML 20 | Powershift transmissions, type EcoLife, for buses.                                         |
| TE-ML 21 | Tractor front axles, transmissions for harvesters and final drives.                        |

## Greases

| MAN                   |                                                                                  |
|-----------------------|----------------------------------------------------------------------------------|
| MAN 283 Li-P 0        | Multipurpose grease, mineral oil, NLGI-Class 0                                   |
| MAN 283 Li-P 0-B      | Multipurpose grease, biodegradable, NLGI-Class 0                                 |
| MAN 283 Li-P 00/000   | Multipurpose grease, mineral oil, NLGI-Class 00/000                              |
| MAN 283 Li-P 00/000-B | Multipurpose grease, biodegradable, NLGI-Class 00/000                            |
| MAN 283 Li-P 2        | Multipurpose grease, mineral oil, NLGI-Class 2                                   |
| MAN 283 Li-P 2-B      | Multipurpose grease, biodegradable, NLGI-Class 2                                 |
| MAN 284 Li-H 2        | High temperature grease, NLGI-Class 2                                            |
| MAN 285 Li-PF 2       | Multipurpose grease                                                              |
| Mercedes-Benz         |                                                                                  |
| MB 264.0              | Liquid grease (NLGI grades 00/000, Specification 264.0)                          |
| MB 265.1              | High temperature antifriction bearing grease (NLGI grade 2, Specification 265.1) |
| MB 266.0              | Grease (NLGI grade 1, Specification 266.0)                                       |
| MB 266.2              | Long-life grease (NLGI grade 2, Specification 266.2)                             |
| MB 267.0              | Multipurpose grease (NLGI Class 2, Specification 267.0)                          |
| MB 267.1              | Wheel bearing grease (NLGI grade 2, Specification 267.1)                         |
| MB 268.0              | Leaf spring grease (Specification 268.0)                                         |
| MB 269.2              | Complex grease (NLGI grade 2, Specification 269.2)                               |

## Coolants

|                                      |                                                             |
|--------------------------------------|-------------------------------------------------------------|
| VW concern:<br>Audi, Seat, Skoda, VW | TL 774-C = G11 (1989...1996)                                |
|                                      | TL 774-F = G12 + (1996 -->)                                 |
|                                      | TL 774-G = G12 ++ (2009 -->)                                |
|                                      | TL 774-J = G13 (2010 -->)                                   |
| BMW                                  | M 600 69.0                                                  |
| FORD                                 | WSS-M97B44-D (lilac), WSS-M97B51-A1 (yellow)                |
| JAGUAR                               | WSS-M97B44-D (lilac)                                        |
|                                      | MB 325.0, 325.2, 325.3, 325.5, 325.6 (undiluted) (1988 -->) |
| MERCEDES-BENZ                        | MB 326.0, 326.3, 326.5, 326.6 (premixed) (1988 -->)         |
|                                      | Glysantin Dynamic Protect G40 (acc. to VW TL 774J) = G 13)  |
| PORSCHE                              | SAAB Original Coolant (--> 2001)                            |
| SAAB                                 | SAAB Longlife Coolant (2000 -->)                            |
|                                      | VOLVO Coolant                                               |
| VOLVO                                | MAN 324 (N, N/Arctic, NF, Si-OAT, SNF)                      |
| MAN                                  | JDM H5 (1971-1984)                                          |
| MTU                                  | MTL 5048                                                    |
| JOHN DEERE                           | JDM H24A2 (1984 -->)                                        |
|                                      | JDM H24A2 (1984 -->) ASTM D4985                             |

## Brake Fluids

|          |                            |
|----------|----------------------------|
| MB 331.0 | Brake fluid DOT 4 Plus     |
| MB 331.1 | Brake fluid DOT 4 Type 200 |









# RAVENOL® AMERICA

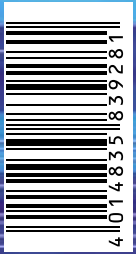
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