



**SHELL
LUBRICANT
SOLUTIONS**

Shell Omala S4 WE

High-performance, PAG-based full synthetic industrial gear oil for bronze-on-steel worm gears

- Extended oil life¹
- Lower sludge tendency¹
- Enhanced wear and corrosion protection¹
- Higher energy efficiency¹

Are you looking for a gear oil with lower operating costs, longer asset life and greater system efficiency? Shell Omala S4 WE gear oil is formulated using a synthetic polyalkylene glycol (PAG) base oil and is designed to help maximise worm-gear life and efficiency. Customers switching to Shell Omala S4 WE report significant savings related to the fluid's extended life, enhanced wear protection and higher energy efficiency, which help to increase productivity and cut maintenance costs.

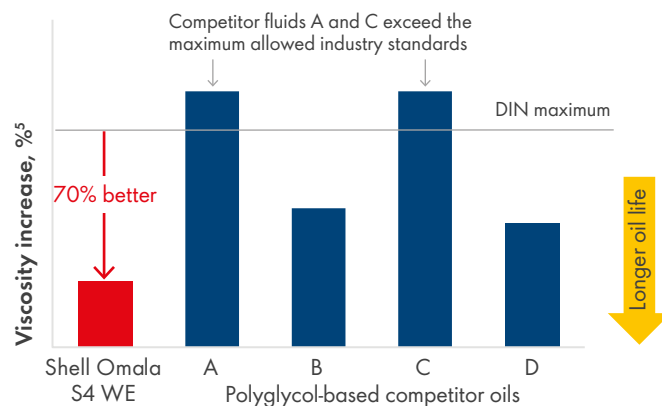


Extended oil life

Uncontrolled oxidation can reduce oil life and lead to sludge, increased viscosity and corrosion, which can cause gear and bearing wear, smaller bearing clearances, plugged lines and blocked filters.

Shell Omala S4 WE is a PAG-based fluid with improved resistance to oxidation, which makes it suitable for extended oil-drain intervals and filled-for-life applications.²

In industry standard tests,³ Shell Omala S4 WE has more than **2× longer oil life** compared with mineral oils⁴ and **70% less viscosity increase** compared with the DIN industry limit.⁵



[Click here to read the expanded image description in the appendix.](#)

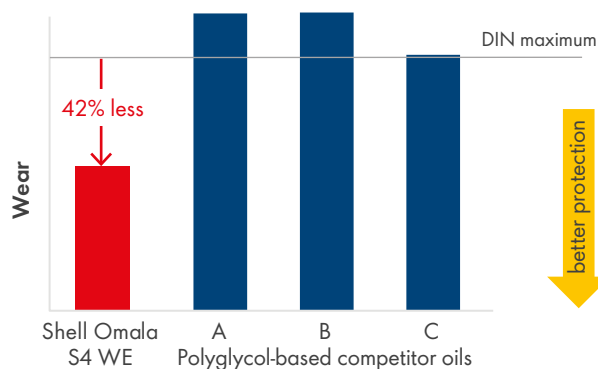
Enhanced wear and corrosion protection

Excessive wear and corrosion can lead to high maintenance costs and equipment downtime.

Shell Omala S4 WE is formulated with extreme-pressure antiwear technology to enhance steel-on-bronze load-carrying capacity. It also provides extra protection against steel-on-steel scuffing, micropitting and corrosion.

In industry standard tests,⁶ Shell Omala S4 WE has **42% less wear** than the next best competitor oil tested. It also has **>12 FZG load-carrying failure stage**.⁷

It also **passes rust tests**⁸ with distilled water and has a **1a rating in copper corrosion tests**.⁹



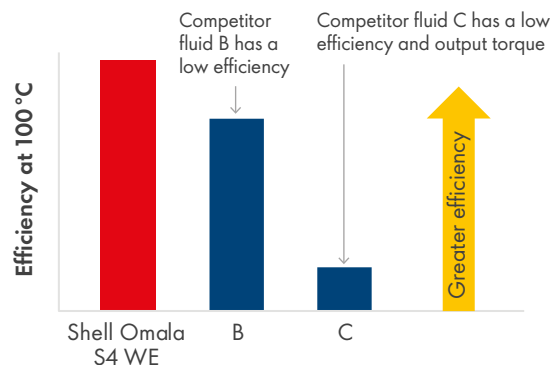
[Click here to read the expanded image description in the appendix.](#)

¹Compared with Shell Omala S1 W and competitor oils, based on Shell internal benchmarking test results. ²Lubricant life depends on the operating conditions, and mixing Shell Omala S4 WE with other PAG-based fluids may reduce oil life. PAG-based fluids should never be mixed with mineral oils. ³RPVOT, modified ASTM D2272 test at 120 °C. ⁴Compared with conventional oil such as Shell Omala S1 W. ⁵Viscosity increase percentage after test D2892 at 121 °C over 312 h. ⁶Four-ball wear test, 100 min, 1,500 rpm, 20 kg, ambient temperature. ⁷FZG is the Institute of Machine Elements – Gear Research Center. A/16.6/90, ASTM D445, IP71. ⁸ASTM D665A/ISO 7120/IP 135, 4 h at 60 °C. ⁹ASTM D130.

Higher energy efficiency

Because of the high degree of sliding, worm gear efficiency is typically only 70–75% of that of spur or helical units. A poor lubricant can further reduce efficiency and thus increase power or fuel costs.

Shell Omala S4 WE is formulated using PAG base fluids to provide very low friction, which helps to cut operating costs by reducing power input, **lowering energy consumption**, improving mechanical efficiency and reducing operating temperatures.

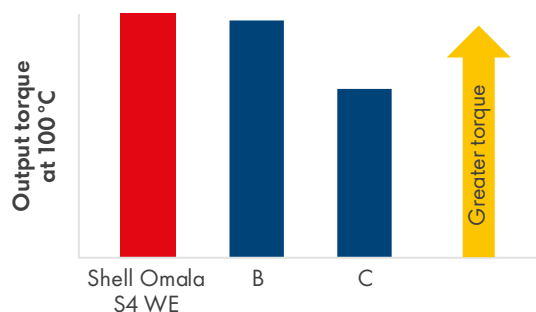


[Click here to read the expanded image description in the appendix.](#)

Wider operating temperature range

If a lubricant does not flow well at low startup temperatures, it may fail to protect your gears from wear, leading to high maintenance costs.

Shell Omala S4 WE has an extremely high viscosity index (VI). This means there is no need to add VI improvers (which can be sheared), helping the fluid to **stay in grade under the most arduous conditions**. It also has a low pour point for **effective lubrication at low startup temperatures**.



[Click here to read the expanded image description in the appendix.](#)

Parameter	Shell Omala S4 WE 320	Competitor A (mineral oil) 320	Competitor B (semi-synthetic fluid) 320	Competitor C (polyalphaolefin-based fluid) 320
VI ¹⁰	239	97	168	181

Customers' reported value¹¹

By switching to **Shell Omala S4 WE 320**

- a paint manufacturer extended conveyor system gearbox life by five times and eliminated unplanned downtime, to save an estimated \$31,000 a year
- a port improved cold-weather performance and reliability and reduced energy consumption, which led to a reported estimated annual saving of \$1,000
- a manufacturing company running roll calender machines under heavy loads and high operating temperatures safely extended oil-drain intervals, thus saving an estimated \$19,000 a year.

Specifications and approvals

Shell Omala S4 WE meets or exceeds industrial standards and equipment manufacturer approval criteria, including:

- ISO 12925-1 Type CKE
- ANSI/AGMA 9005-E02 (EP)
- Bonfiglioli
- David Brown S1.53.105 G.

Full product and service portfolio

Shell Lubricants¹² is the market leader¹³ in lubricants with a long history of innovation. We constantly invest to develop better lubrication solutions, including advanced synthetic technologies such as:

- Shell Tellus S4 VE – premium hydraulic oil for energy efficiency
- Shell Omala S4 GXV Plus – full synthetic gear oil approved by SEW and Flender.

In addition, we provide the world-leading Shell LubeAnalyst oil condition monitoring service, which is designed to help improve your business performance.

Whatever your needs or application, ask us how we can help your business through our full range of oils and greases, including synthetic, high-performance products and additional services.

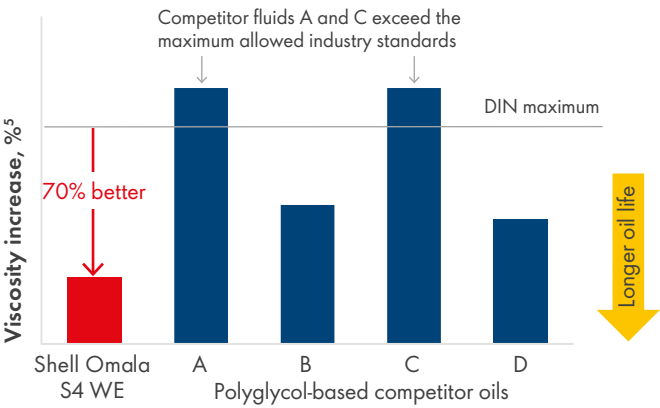
¹⁰Data from Shell internal benchmarking tests and published product datasheets. ¹¹The savings indicated are specific to the calculation date and mentioned site. These calculations may vary from site to site and from time to time, depending on, for example, the application, the operating conditions, the current products being used, the condition of the equipment and the maintenance practices. ¹²"Shell Lubricants" refers to the various Shell companies engaged in the lubricants business. ¹³Refer to Kline & Company 2023, 21st Edition Global Lubricants: Market Analysis and Assessment 2022; Shell named #1 global lubricants supplier for the 17th year in a row.



Contact us

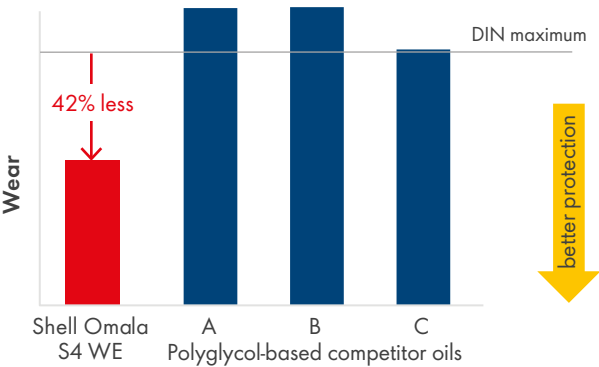
For more information, please contact your Shell Lubricant Solutions representative or visit www.shell.com/lubricants

Appendix



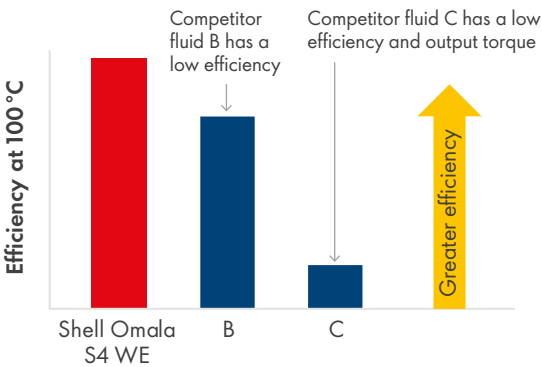
Graph showing the percentage increase in viscosity of Shell Omala S4 WE and four polyglycol-based competitor oils, with a lower value indicating longer oil life. Shell Omala S4 WE shows the lowest viscosity increase, around 70 per cent lower than the DIN maximum limit. Competitor fluids A and C exceed the DIN maximum, while B and D remain within the limit but still show greater viscosity increases than Shell Omala S4 WE.

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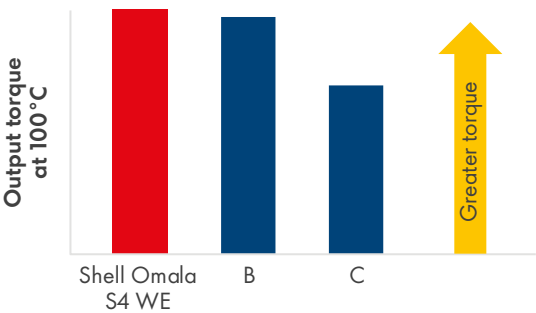
Graph showing wear performance of Shell Omala S4 WE and three polyglycol-based competitor oils, with a lower value indicating better protection. Shell Omala S4 WE shows 42 per cent less wear than the DIN maximum limit. All three competitors exceed the DIN maximum.

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Graph showing the efficiency at 100 degrees Celcius of Shell Omala S4 WE and two competitor oils, with a higher value indicating greater efficiency. Shell Omala S4 WE shows the highest efficiency. Fluid B has a low efficiency, and fluid C has a low efficiency and output torque.

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Graph showing the output torque at 100 degrees Celcius of Shell Omala S4 WE and two competitor oils, with a higher value indicating greater torque. Shell Omala S4 WE shows the highest output torque, closely followed by Fluid B. Fluid C shows low output torque.

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