



Shell Marine

SHELL ALEXIA PORTFOLIO

A RANGE OF TWO-STROKE DIESEL ENGINE
CYLINDER OILS





YOUR PARTNER FOR INTEGRATED MARINE LUBRICANT SOLUTIONS

Over the last few years, the marine industry has experienced significant changes. However, the most profound change is the International Maritime Organization's (IMO) reduction of the global cap on the maximum sulphur content of marine fuels from 3.5 to 0.5%, which takes effect on 1 January 2020.

Shell supports IMO's decision and Shell Marine is helping customers around the world to comply with the changes in a flexible and timely manner.

Substantial challenges remain for shipping companies, including the need to select the right lubricant. Selecting a lubricant that will enable compliance with the low-sulphur fuel cap is key, but robust, long-term engine performance is also imperative.

As your partner for integrated marine lubricant solutions, we can provide

- lubricants for whatever fuel you use
- a range of technical solutions, including engine monitoring, to help ensure that you comply with IMO 2020 safely, efficiently and cost-effectively. These include guidance and advice based on our global experience and expertise.

WITH THE SHELL ALEXIA RANGE OF LUBRICANTS AND TECHNICAL SERVICES SUCH AS SHELL LUBEMONITOR, SHELL MARINE CAN BE YOUR PARTNER FOR INTEGRATED MARINE LUBRICANT SOLUTIONS.

THE SHELL ALEXIA PORTFOLIO IS DESIGNED TO HELP YOU MEET THE IMO 2020 SULPHUR CAP

The Shell Alexia range of two-stroke diesel engine cylinder oils can help ship owners in the post-IMO 2020 era. As Table 1 shows, it includes products ranging from base number (BN) 25 to 140. The higher BN products are for those vessels that continue to use high-sulphur fuel oil (HSFO) in conjunction with exhaust gas scrubbing and the lower BN products are for use with 0.1 and 0.5% sulphur fuels and liquefied natural gas (LNG).

The lubricants in this portfolio are now branded by BN to minimise errors onboard and to maximise the opportunities to align lubricant selection with the types of fuel in use.

The new Shell Alexia portfolio	Previously known as	Base number (BN)	SAE engine viscosity grade	Fuel
Shell Alexia 25	Shell Alexia S3	25	50	0.1% sulphur fuel, Emission Control Areas and liquefied natural gas (LNG)
Shell Alexia 40	-	40	50	0.1% sulphur and 0.5% sulphur fuel
Shell Alexia 70	Shell Alexia 50	70	50	High-sulphur fuel oil* + scrubber
Shell Alexia 100	Shell Alexia S6	100	50	High-sulphur fuel oil* + scrubber
Shell Alexia 140	Shell Alexia 140	140	60	High-sulphur fuel oil + scrubber

*0.5% sulphur fuel (if needed for cleanliness)

TABLE 1: The new Shell Alexia portfolio, which is now branded by BN.

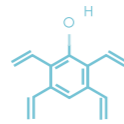
Shell Alexia 40 to 140



Based on new formulation technology



Fully miscible and compatible with the existing portfolio



Designed to use low tetrapropenyl phenol technology for safer handling



Widely approved by equipment manufacturers

INTRODUCING THE ALL-NEW SHELL ALEXIA 40

Shell Alexia 40 is already available to ease your transition to a post-2020 reality. The cylinder oil for low-speed, two-stroke diesel engines using 0.1% and 0.5% sulphur fuel provides reliable engine protection and is designed, tested and verified to comply with IMO 2020 regulations.

In Chinese coastal waters, where there is already a 0.5% sulphur fuel requirement, Shell Alexia 40 was successfully trialled

onboard multiple vessels. In European Emission Control Areas, the oil has completed 1,500 hours of field trials in a vessel using 0.1% sulphur fuel. The new product exhibited many of the same characteristics as it did in the vessels using 0.5% sulphur fuel, which means Shell Alexia 40 is ideal to use with 0.1% sulphur fuels.

Shell Alexia 40 has successfully completed 4,000 hours of field trials in engines from both MAN Energy Solutions and Winterthur Gas & Diesel and received full no objection letters.



TECHNICAL SERVICES DESIGNED TO MANAGE UNCERTAINTIES AND MINIMISE COSTS

Our extensive technical services are backed by more than 100 years of experience and a global network. As part of a lubrication management programme, they can help you get the most value from our lubricants. The full range of services is shown in Table 2.

Monitoring your engines with Shell LubeMonitor

Engine monitoring is key in the transition to IMO 2020 compliance. Most equipment manufacturers now recommend that fluids should be constantly monitored using laboratories with stringent quality controls. This creates an understanding of the machinery's overall condition and provides peace of mind for owners, especially as you transition to a different fuel.

For example, if you have switched to a 0.1% or 0.5% sulphur fuel, the associated change to a lower BN lubricant will need careful monitoring onboard your vessels and greater attention to the compatibility and stability of the new fuels.

Shell LubeMonitor provides indications of engine condition and helps to ensure the optimum feed rates for your fuel and lubricant choices. It is often combined with Shell LubeAdvisor, which can provide support with changeover procedures.

The programme includes

- **sweep tests**, as recommended by equipment manufacturers for finding the optimal feed rate when changing, for example, the fuel (different sulphur level) or the load (advisable for engines suffering from cold corrosion)
- **feed rate optimisation** for finding the lowest possible feed rate and optimum wear rate combination for your engine

- **cylinder monitoring** to help you to understand the condition of your engine.

The benefits include

- **minimising** the volume of lubricants you need by optimising feed rates
- **maximising** the life of engine components by controlling wear
- **preventing** unscheduled downtime and reducing unexpected engine breakdowns.

Use Shell LubeAnalyst to identify potential oil or equipment failures before they become critical

Many leading shipping companies use Shell LubeAnalyst as an important part of their planned and predictive maintenance strategies to help deliver

- **greater equipment reliability** and reduced downtime through early diagnosis of potential faults
- **accurate and timely results worldwide:** analysis for all normal samples is available within two working days of the samples reaching the Shell laboratory
- **lower** machine repair costs
- **high safety** standards
- **precise monitoring** of operating efficiency.

Shell LubeMonitor

A cylinder condition monitoring programme for two-stroke marine engines designed to achieve an acceptable balance between cylinder oil costs and wear-related cylinder maintenance expenses

Shell LubeAdvisor

On-site support, including lubrication surveys, vessel assessments and in-depth technical and application support, from a global team of field-based engineers

Shell LubeAnalyst

A flexible used-oil laboratory analysis designed to help save time and money on maintenance resulting from equipment failure

Shell LubeCoach

Tailored, in-depth lubrication training programmes

Shell LubeExpert

Expert consultation and technical advice for customers with specialist needs

TABLE 2: Shell's range of technical services.



FIGURE 1: Shell Marine has teams of experts in strategic locations around the globe.

Global account management

To help achieve our goal of serving customers efficiently, we have a central team of specialists and scientists who look after equipment manufacturers' approvals; a global team of field-based engineers who provide on-site

help; regional account managers; and state-of-the-art laboratories at strategic locations around the world, as shown in Figure 1.

MANY LEADING SHIPPING COMPANIES USE **SHELL LUBEANALYST** AS AN IMPORTANT PART OF THEIR PLANNED AND PREDICTIVE MAINTENANCE STRATEGIES

WHAT DIFFERENTIATES US



CORPORATE HERITAGE

Shell Marine serves more than 10,000 vessels, ranging from large ocean-going tankers to small fishing boats, giving us extensive insights into our customers' needs and challenges.



HEALTH, SAFETY, SECURITY AND THE ENVIRONMENT

Shell has a clear commitment to health, safety, security and the environment, and works continuously to embed a safety culture throughout its organisation.



SUPPLY CHAIN

We have a global supply chain of more than 30 lubricant blending plants and a network of more than 700 ports across 61 countries.



GLOBAL REACH

We offer a powerful combination of highly responsive local service and expertise from an international network of research and development centres, manufacturing and blending plants, and distribution facilities.



TECHNOLOGY LEADERSHIP

We are committed to developing advanced lubricant technologies and invest significantly in research and development for new products.



TALK TO OUR TEAM

Contact your Shell Marine representative for further details on Shell marine lubricants and their applications or

Visit shell.com/marine