

Shell Marine



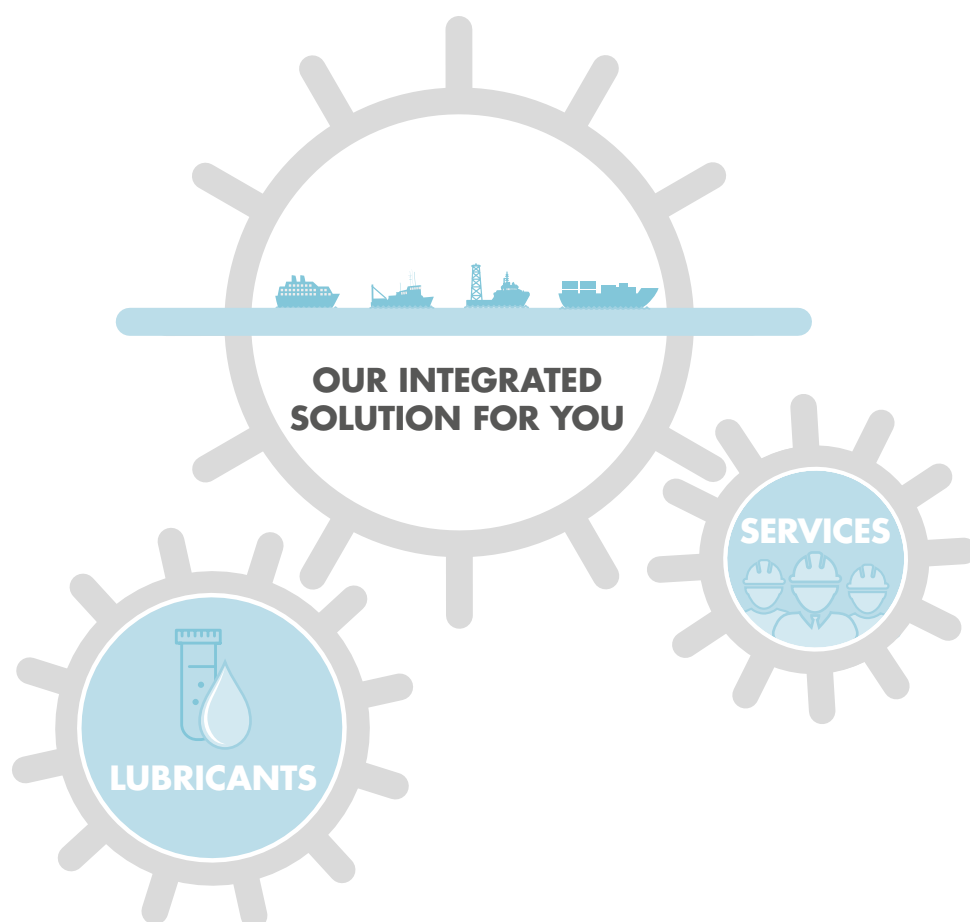
IMO 2020 READY

INTEGRATED SOLUTIONS FOR
A LOWER-EMISSIONS FUTURE



SHELL SUPPORTS THE DECISION OF THE INTERNATIONAL MARITIME ORGANIZATION (IMO) TO IMPLEMENT A 0.5% SULPHUR CAP ON 1 JANUARY 2020 **AND IS PREPARING TO PROVIDE ITS CUSTOMERS WITH OPTIONS TO ENABLE THEM TO COMPLY WITH THE CHANGES IN A FLEXIBLE AND TIMELY MANNER.**

HOW SHELL MARINE CAN HELP YOU TO MANAGE THE TRANSITION TO BECOMING IMO 2020 COMPLIANT



LUBRICANT SOLUTIONS

FOR TWO-STROKE ENGINES

The **Shell Alexia** portfolio of high-performance cylinder oils is designed to cover all operating conditions. The technical DNA of Shell Alexia is underpinned by our rigorous scientific understanding of oil stress and proven performance in the field.

	Base number (BN)	SAE engine viscosity grade	Fuel
Shell Alexia 25	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	70	50	0.5% sulphur fuel (newer engines) and high-sulphur fuel oil (old vessels with scrubbers)
Shell Alexia 100	100	50	High-sulphur fuel oil + scrubber (newer engines)
Shell Alexia 140	140	60	High-sulphur fuel oil + scrubber (newer engines)

FOR FOUR-STROKE ENGINES

The **Shell Argina** and **Shell Gadinia** ranges of products are optimised to deal with the faster viscosity increase and BN depletion experienced by oils in the latest medium-speed engines. For vessels fuelled by LNG, Shell offers a range of **Shell Mysella** products.

	BN	SAE engine viscosity grade	Application
Shell Argina S2	20	30, 40	0.1–0.5% sulphur heavy fuel oil/dual-fuel application
Shell Argina S3	30	30, 40	Main grade, 0.5–2.0% sulphur heavy fuel oil/dual-fuel application
Shell Argina S4	40	40	Main grade, 2.0–3.5% sulphur heavy fuel oil/dual-fuel application
Shell Argina S5	55	40	Premium product, 2.0–3.5% sulphur heavy fuel oil
Shell Gadinia AL	15	30, 40	Anti-lacquer performance
Shell Gadinia S3	12	30, 40	<0.1% marine gas oil, dual-fuel application
Shell Mysella S3N	5	40	Low-ash, stationary gas engine oil
Shell Mysella S5N	4.5	40	Premium, long-life, low-ash, stationary gas engine oil



TECHNICAL SERVICE SOLUTIONS

Switching to a very-low-sulphur fuel oil (0.5% sulphur) and the associated change to a lower BN lubricant will need careful monitoring on board vessels and require paying greater attention to the compatibility and stability of the new fuels. Our Shell LubeMonitor and Shell LubeAdvisor services give indications of engine condition and help to ensure the optimum feed rates for your fuel and lubricant choices.

SHELL LUBEMONITOR

This service is designed to monitor two- and four-stroke marine engine performance. It includes access to Shell tools and advice to help you manage the transition to IMO 2020 compliance.

Shell LubeMonitor 2T for two-stroke engines:

- **sweep tests** 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 and the root causes of high wear (particularly useful for engines suffering from cold corrosion or switching to IMO 2020 compliant fuels).

Shell LubeMonitor 4T for four-stroke engines:

This service (only applicable to engines using Shell Argina) includes tailored medium-speed engine oil-stress-management advice to help increase engine protection and reliability, optimise your operating costs over an engine's life and provide longer oil engine component life:

- **drain oil analysis** for general condition monitoring
- **oil life extension:** a customised oil sweetening regime for a specific engine.

Shell Marine technical services also offer advanced onboard test technologies such as

- X-ray fluorescence and attenuated total reflectance analyses: non-chemical testing of fuels and lubricants
- compatibility tester and catalyst fines test kit for marine fuels.





WE KNOW HOW TO MAKE A DIFFERENCE

SHELL LUBEMONITOR IN ACTION

THE CHALLENGE

A Shell Marine customer in China, Ningbo Marine, wanted to use the optimum engine lubricant in its bulk carrier, the *Ming Zhou 501*, which burns 1.7% marine fuel oil.

THE SOLUTION

Shell Marine recommended changing to a higher BN cylinder oil, Shell Alexia 100, and using the Shell LubeMonitor service for better optimisation.

VALUE DELIVERED

Ningbo Marine reported a reduction in the bulk carrier's annual cylinder oil consumption from 25,000 to 12,600 l/y for **cost savings of US\$39,000 a year.**¹

MORE SAVINGS...

THE CHALLENGE

PT Salam Pacific Indonesia Line (PT SPIL) wanted to optimise the container ship *SPIL Hasya's* consumption of Shell Alexia 70 cylinder oil and to cut its lubrication costs without compromising on engine protection.

THE SOLUTION

Distributor PT CMM, with the Shell Marine team, suggested that a feed-rate optimisation programme and cylinder condition monitoring through the Shell LubeMonitor service would help the vessel to reduce its cylinder oil consumption.

VALUE DELIVERED

With Shell LubeMonitor, the customer was able to optimise the cylinder lubricant feed rate and to reduce the oil consumption safely from 160 to 96 l/d. PT SPIL has successfully reduced the *SPIL Hasya's* lubricant consumption. It reported **savings on lubrication costs of about US\$18,760 a year for the vessel.**¹

¹The savings indicated are specific to the calculation date and mentioned site. These calculations may vary from vessel to vessel 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.

SHELL LUBEADVISOR: EXPERT GUIDANCE AND TRANSITION PLANNING



Changeover guidelines – Get the right lubricant for your fuel

Using the right lubricant for your IMO 2020 compliance option is critical, as each lubricant has been carefully developed and tested at sea to give the optimum performance for each fuel solution. Shell Marine has a wide range of suitable lubricants and will help you in making the right choice.



Understand fuel quality and compatibility

There are universal benchmarks that characterise the key attributes of fuel oils and their marine application segments. However, there are critical considerations that these norms may not state. Shell Marine has the expertise to help you to understand the different fuel types and their potential impacts on your vessel's operation.



Onboard testing of fuel

Fuel incompatibility and contaminants such as catalyst fines can pose concerns regarding onboard fuel management and engine operation. Shell Marine can offer you different onboard fuel tests solutions such as compatibility testing that will quickly identify potential fuel stability problems and testing for catalyst fines to prevent irreparable damage to fuel pumps, injectors, piston rings and liners.

Shell Marine offers a wide range of tools to help you avoid non-compliance and to understand fuel compatibility and catalyst fines through its onboard test solutions.



Step-by-step vessel transition planning

Fuel transition planning will have to be carefully managed. Everything from lubricant stock management to understanding lubricant system layouts requires thorough planning. Shell Marine can help you to understand and to create vessel-specific transition plans.

HOW CAN WE HELP YOU TO TRANSITION?

Contact your Shell Marine account manager to find out more or visit

shell.com/marine

