



Shell **ALEXIA S4**

Cylinder Lubricant for two-stroke low speed diesel engines

- **EXTRA PROTECTION**
- **OPERATIONAL SIMPLICITY**

Shell Alexia S4 is a wide range cylinder lubricant designed for use in all two-stroke low speed diesel engines. Shell Alexia S4 is suitable for use with engines burning distillate * and residual fuel and has been engineered to offer excellent performance under all operational conditions such as full power, "slow" and "flexible" steaming regimes. Shell Alexia S4 has been especially formulated to deal with all aspects of Oil Stress.

Shell Alexia S4 has been particularly designed for the new generation of highly rated, fuel efficient, low speed marine diesel engines operating with higher pressures, higher temperatures and longer strokes.

Shell Alexia S4 has a BN of 60, but has been used at the same feedrate as a BN 70 cylinder oil in all our field trials.

Performance Features and Benefits

- **Engine protection**

Shell Alexia S4 offers outstanding acid neutralising properties which help to prolong the life of components.

It has superior deposit control and minimises deposit build up on pistons, piston rings, ring grooves, under piston spaces and in cylinder ports.

Shell Alexia S4 has been engineered to provide enhanced boundary lubrication properties resulting in low cylinder and piston ring wear with typical cylinder wear rates below 0.05 mm per 1000 hours

- **Operational simplicity**

Shell Alexia S4 is a single, all purpose lubricant suitable for use with distillate * and all types of residual fuel oil. It will also offer protection from the effects of oil stress under different operating conditions from full power to flexible operation and slow steaming.

Main Applications

- **Two-stroke low speed diesel engines**

Cylinder lubrication of all types of 2-stroke low speed diesel engines burning distillates * and residual fuel oil from 0.5 – 3.5% sulphur levels.

Specifications, Approvals & Recommendations

- **Approvals**

Shell Alexia S4 is approved for use by major manufacturers of low speed crosshead diesel engines including:

- Wärtsilä
- MAN

- **Cylinder oil feed rates**

Insufficient cylinder oil feed rates can lead to corrosive wear, seized and broken rings and consequent blow-by and scavenge fire risks, and to the formation of excessive deposits.

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To obtain optimum performance with Shell Alexia S4 it is important to:

- Ensure the lubrication system is well maintained and properly adjusted
- Use AnalexAlert to analyse used oil and seek advice from Shell's technical experts for advice on how to optimise oil feed rate

- **Mixing of cylinder lubricants**

Alexia S4 is fully miscible with all other cylinder lubricants. However, for optimum performance, Alexia S4 should not be used in conjunction with any other cylinder lubricant.

* up to 1000 hrs, see your technical manager for more details and suitability of use



Typical Physical Characteristics

Property		Test Method	Shell Alexia S4	Units
SAE Viscosity Grade			40	
Kinematic Viscosity	40 C	ASTM D445 - IP 71	165	mm ² /s
	100 C	ASTM D445 - IP 71	15.5	mm ² /s
Viscosity Index		ASTM D2270 - IP 226	> 95	
Density	15 C	ASTM D4052 - IP 365	0.926	kg/l
Flash Point (Closed)	Pensky Martens	ASTM D 93 - IP 34	> 210	C
Pour Point		ASTM D 97 - IP 15	< -6	C
BN		ASTM D2896 - IP 276	60	mg/KOH/g
Sulphated Ash		ASTM D874 - IP 163	7.5	% wt

These characteristics are typical of current production.

Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

Health, Safety & Environment

- **Health & Safety**

Shell Alexia S4 is unlikely to present any significant health or safety hazard when properly used in the recommended application, and good standards of industrial and personal hygiene are maintained. Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

For further guidance on Product Health & Safety refer to the appropriate Shell Product Safety Data Sheet

- **Protect the environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Additional Information

- **Advice**

- With the introduction of Alexia S4, the current cylinder lubricants Alexia 50 and Alexia LS will be withdrawn from the Shell product portfolio.
- Advice on applications not covered in this leaflet may be obtained from your Shell Representative.