



# Shell ALEXIA S4

*Cylinder Lubricant for two-stroke low speed diesel engines*

Shell Alexia S4 cylinder oil offers proven performance for use in two-stroke low speed diesel engines.

Shell Alexia S4 is specifically for use with low sulphur heavy fuel oil;

Shell Alexia S4 is a BN 60, SAE40 cylinder oil.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

#### Engine protection

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

It offers excellent 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 in the field trials carried out.

#### Main Applications

Two-stroke low speed diesel engines using low sulphur heavy fuel oil. For detailed application advice based on your specific engine type and operating conditions refer to manufacturers' guidelines.

### Specifications, Approvals & Recommendations

Shell Alexia S4 is validated for use in low sulphur fuel applications by key manufacturers of low speed crosshead diesel engines including:

- Wärtsilä
- MAN
- MHI

#### Cylinder Oil Feed Rates

The cylinder oil feed rate should be determined in accordance with OEM guidelines and should then be further optimised using a combination of onboard analysis (such as Shell Analex Alert and Shell Onboard+) and onshore used oil analysis (such as Shell RLA).

For a full listing of equipment approvals and recommendations, please consult your Shell Marine Products representative, or local Shell Technical Help Desk.

### Compatibility & Miscibility

#### Mixing of Cylinder Lubricants

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

### Typical physical characteristics

Properties		Method	Shell Alexia S4	
SAE Viscosity Grade			40	
Viscosity Index		ASTM D2270 - IP 226	>95	
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	15.8
Density	@15°C	kg/l	ASTM D4052 - IP 365	0.926
Flash Point (Closed)	Pensky Martens	°C	ASTM D93 - IP 34	>210
Pour Point		°C	ASTM D97 - IP 15	<-6
BN		mg/KOH/g	ASTM D2896 - IP 276	60

Properties		Method	Shell Alexia S4
Sulphated Ash	%wt	ASTM D874 - IP 163	7.4

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 and 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 personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from [www.epc.shell.com](http://www.epc.shell.com)

- **Protect the Environment**

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

## Additional Information

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.