

# SHELL CAPRINUS XR

RAILROAD DIESEL ENGINE OIL

DESIGNED TO MEET CHALLENGES

Shell Caprinus XR oils are premium grade, heavy-duty, engine oils, intended mainly for railroad diesel engines of North American origin, particularly those manufactured by General Electric (GE) and General Motors Electro-Motive Division (GM-EMD).

Shell Caprinus XR oils use the latest, low-chlorine additive technology which offers environmental benefits without affecting performance. Shell Caprinus XR oils do not contain zinc and are approved for use by GM-EMD for their engines fitted with silver piston-pin bearings and by GE for their latest locomotives.

## PERFORMANCE FEATURES

EXCELLENT DETERGENCY AND DISPERSANCY PROPERTIES

- n A carefully balanced combination of detergency and dispersancy helps ensure outstanding engine cleanliness.

GOOD OXIDATION AND THERMAL STABILITY

- n Good protection against corrosion by the acidic products of combustion.

GOOD ANTI-WEAR PROPERTIES

- n Maintains a protective oil film between pistons and their rings and cylinder walls, even under high operating temperatures and pressures. Use of low-chlorine anti-wear additives ensures protection of valve trains and other parts.

HIGH VISCOSITY INDEX BASE OILS

- n Provides a higher level of protection than lubricants based on naphthenic mineral oils.

## APPLICATIONS

- n North American diesel engines subjected to the most arduous duty where 'zinc-free' oils are recommended by the engine manufacturer. Applications are primarily for railroad locomotives, however, Shell Caprinus XR may also be suitable for certain engines in power generation, marine and mine-haul applications.
- n Shell Caprinus XR oils are low chlorine formulations meeting the requirements of leading railroad operators in North America.

## SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

- n API Service Classification: CF
- n EMD: Approved 'Worthy of full scale field test' (WOFT)
- n General Electric: Gen 4 – Long life 'tentative approval'
- n LMOA: Generation 5
- n Detroit Diesel: Recommended for DDC Series '149' engines under severe conditions.

SEAL AND PAINT COMPATIBILITY

- n Shell Caprinus XR is compatible with all seal materials and paints normally specified for use with mineral oils.

## TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	20W-40	40
Kinematic Viscosity @ 40°C mm <sup>2</sup> /s (IP 71)	132	150
@ 100°C mm <sup>2</sup> /s (IP 71)	15.1	15.1
Viscosity Index (IP 226)	115	98
Density @ 15°C kg/m <sup>3</sup> (IP 365)	920	908
Flash Point °C (COC) (IP 36)	256	260
Pour Point °C (IP 15)	-9	-9
Total Base Number mg/KOH/g (IP 276)	13.0	13.0
Chlorine Content	Trace	Trace
Sulphate Ash %wt (IP 163)	1.5	1.5