



# Shell Caprinus XR 40

## Railroad Diesel Engine Oil

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 and General Motors Electro-Motive Division (EMD).

Shell Caprinus XR oils use the latest, low-chlorine additive technology which offers both environmental benefits and improved 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.

The performance of Shell Caprinus XR has been demonstrated in highly rated North American railroad operation subject to the most severe operating conditions.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Excellent detergency and dispersancy properties**  
A carefully balanced combination of detergency and dispersancy ensures outstanding engine cleanliness.
- **Good oxidation and thermal stability**  
Good protection against corrosion by the acidic products of combustion.
- **Good anti-wear properties**  
Maintains a protective oil film between pistons and their rings and cylinder walls, even under high operating temperatures and pressures. Use of low-chlorine antiwear additives ensures protection of valve trains and other parts.
- **High viscosity index base oils**  
Provides a higher level of protection than lubricants based on naphthenic mineral oils.

#### Main Applications



- 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 Caprinus HPD may also be suitable for certain engines in power generation, marine and mine-haul applications.

- Shell Caprinus XR Oils are low chlorine formulations meeting the requirements of leading railroad operators in North America.

#### Specifications, Approvals & Recommendations

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

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

#### Compatibility & Miscibility

- **Seal & Paint Compatibility**  
Shell Caprinus XR 40 is compatible with all seal materials and paints normally specified for use with mineral oils.

## Typical Physical Characteristics

Properties			Method	Shell Caprinus XR
SAE Viscosity Grade				40
Kinematic Viscosity	@40°C	cSt	IP 71	150
Kinematic Viscosity	@100°C	cSt	IP 71	15.1
Viscosity Index			IP 226	98
Density	@15°C	kg/l	IP 365	0.908
Flash Point (COC)		°C	IP 36	260
Pour Point		°C	IP 15	-9
TBN-E		mg KOH/g	IP 276	13.0
Chlorine Content		ppm		Trace
Sulphated Ash		% wt	IP 163	1.5

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 Caprinus XR 40 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 <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.