

# Flushing procedure: Mobil SHC™ Aware™ H and Mobil SHC™ Aware™ HS Series hydraulic oils



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## Introduction

Mobil SHC™ Aware™ H and Mobil SHC™ Aware™ HS Series hydraulic oils are engineered to protect hydraulic systems and components. If contamination of hydraulic oil occurs, it can have an adverse effect on performance. Significant\* contamination can affect the hydraulic fluids' biodegradability and toxicity. Contamination of fluid can occur from ingress, or it could arise from a changeover from one lubricant to another.

ExxonMobil recommends a flushing procedure for systems being converted to Mobil SHC Aware H and Mobil SHC Aware HS Series hydraulic oils to mitigate the potential for contamination. The degree of flushing depends on the condition of the system and the fluid previously used.

This document covers flushing procedures for three scenarios:

- New systems
- Systems previously using automotive oils or polyalkylene glycol (PAG)-based products
- Systems previously using mineral oil-based industrial hydraulic and circulating fluids

## New systems

Many new systems may have an internal coating of rust preventives, or may have been run on preservative fluids before shipping. Protective coatings on individual components, such as pumps and valves, should be removed and the components cleaned.

ExxonMobil recommends the following guidelines as operators prepare new systems for Mobil SHC Aware H and Mobil SHC Aware HS Series hydraulic oils:

**Step 1:** If the system contains oil, drain as much as possible from cylinders, filters, pumps, valves, etc. Wipe the reservoir and other accessible interior spaces with clean rags. Look carefully for pipe scale, weld spatter, threading compound, gasket cement, shavings and other debris left behind after installation. Remove any solid contaminants from the system.

**Step 2:** Replace filters, if necessary.

**Step 3:** Charge the system with sufficient Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils or the appropriate grade of mineral hydraulic fluid to assure full circulation to all components.

**Step 4:** Operate the system at normal temperatures and loads for a minimum of at least one hour after these temperatures and loads have been reached. Monitor the differential pressure drop across the filter. A filter change may be necessary during this flush because contaminants in the system are incompatible with the Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils. If this is the case, change the filters and continue to operate the system at normal temperatures, but at reduced loads, until the hour of flushing is completed and/or the filters are clean.

**Step 5:** Drain the system while warm and repeat step 1.

**Step 6:** Add the final charge of Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils, and begin normal operation.

\*Contamination levels typically greater than 5 per cent.

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## Systems previously using automotive oils or polyalkylene glycol (PAG)-based products

Automotive engine oils and polyalkylene glycol (PAG)\* fluids can demonstrate the highest degree of incompatibility with Mobil SHC™ Aware™ H and Mobil SHC™ Aware™ HS Series hydraulic oils, particularly if the systems contain moisture. For this reason, special precautions are necessary to ensure an adequate flush. Small amounts of water (<1000 ppm) will not change the performance characteristics. Care must be taken to ensure that moisture does not enter into the product, which may be the case with a previous fluid in the system, or in a high-humidity environment.

**Step 1:** Drain the system, including all cylinders, accumulators and lines, while warm.

**Step 2:** Install new filters, and clean the filter housings.

**Step 3:** Fill the system with sufficient Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils to assure full circulation to all components.

**Step 4:** Operate the system for at least two hours under normal operating conditions. If the flushing fluid shows any sign of contamination, repeat steps 1, 2, 3 and 4.

**Step 5:** Repeat steps 1 and 2, and then fill the system with the final charge of Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils. Resume normal operation, and monitor filters daily.

## Systems previously using mineral oil-based industrial hydraulic and circulating fluids

To enable optimal performance, it is recommended that systems using mineral oils be drained and flushed before refilling with Mobil SHC Aware or Mobil SHC Aware HS Series hydraulic oils using the following procedure:

**Step 1:** Operate the system under normal conditions until normal operating temperature is reached, and then drain the oil. Ensure that no more than 5 per cent of the previous oil remains in the system.

**Step 2:** Install new filters, and clean the filter housings.

**Step 3:** Fill the system with Mobil SHC Aware H Series or Mobil SHC Aware HS Series hydraulic oils.

**Step 4:** Operate the system for at least two hours under normal operating conditions. Monitor the differential pressure drop across the filter.

## Health and safety

Consult the Material Safety Data Sheets (MSDS) for Mobil SHC Aware H or Mobil SHC Aware HS Series hydraulic oils. Please follow all health and safety warnings and precautionary statements on the product MSDS. Please also consult the equipment manufacturer and your company for safety and health instructions. Follow all instructions and all local, state and federal regulations when flushing equipment.



\*PAG fluids are incompatible with most mineral and synthetic ester lubricants. A thorough flush and refill is required to ensure the integrity of the hydraulic fluid in service.

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