

GEAR OIL CHANGEOVERS - POLYGLYCOLS

INTRODUCTION

Polyglycols are one of several synthetic base fluids that can be used as a foundation for gear lubricants. While polyglycols are known for their superior high temperature properties, they are generally not compatible with mineral oil or polyalphaolefin (PAO) based lubricants. Typically, a mineral oil or PAO can only tolerate about 0.5% contamination by a glycol, and vice versa, before problems begin to occur. An increase in viscosity, and possible gelling, can occur. Therefore, a specialized changeover procedure is usually required to avoid mixing.

CHANGEOVER PROCEDURE

With any plant process, it is imperative to review the steps with the Plant Engineers, HSE professionals and other appropriate personnel to assure that the process can be completed safely and without incident.

- 1.) Drain the unit of the incumbent lubricant; it is best to do this when the lubricant is warm and immediately after shutdown. Some plants require Lockout-Tagout (LOTO) for these operations.
- 2.) Inspection covers should be removed to monitor progress. If it can be done safely, the interior of the unit should be wiped down and the remainder of the lubricant removed from the sump by vacuum or other means.
- 3.) If the unit has a heat exchanger, spray system, filter units or other ancillary devices, the units should be treated in a similar fashion to assure that less than 0.5% of the incumbent lubricant remains in the system.
- 4.) If it is not possible to complete these steps, then a flush procedure will be required to remove the remaining lubricant. There are several fluids that could be used and must be selected based on the ability to be used safely, extracted from the unit, and disposed of properly. Sometimes a low viscosity hydraulic oil or a rust and oxidation inhibited oil is used. Alternately a solvent, like stoddard solvent, could be used. If a solvent is chosen, it is necessary to assure proper ventilation, no sources of ignition are present, and all other safety procedures and personal protective equipment are in place.
- 5.) Once the flush is completed and the flushing fluid removed from the unit, a partial charge of the polyglycol oil should be circulated through the unit. The oil should be inspected for signs of mineral oil / PAO contamination from the previous lubricant. If haziness or splitting is seen, it may be necessary to repeat this step.
- 6.) Upon completion of the flush and drain, the unit can then be charged with the polyglycol oil. It is recommended that the service oil be tested after a short running time to assure that the changeover was properly completed.

Industrial Technology Deployment

The information in the paper is provided for guidance and informational purposes only. The information contained herein has been compiled from sources deemed reliable and it is accurate to the best of our knowledge and belief.

However, Castrol cannot guarantee its accuracy, completeness, and validity and cannot be held liable for any errors or omissions, as the results change depending on the working condition/environment.

The content, website and information within the paper are not intended to provide investment, laboratory or manufacturing process advice.

Changes are periodically made to this information and may be made at any time. All information contained herein should be independently verified and confirmed.

Castrol Technology Deployment, 150 W Warrenville Rd., Naperville IL 60563