Fire-Resistant Hydraulic Fluid

By Tony Noblit

Today, plant managers are asked to handle more responsibility than ever before. In addition to effectively managing operations to meeting production schedules, the facility needs to control costs and operate safely.

Petroleum oil has been the workhorse of hydraulic fluids for many years. But workhorse or not, oil presents a critical disadvantage for many plants – it burns.

Heat and pressure are common in most of today's metal producing processes, and both can be dangerous when hydraulic equipment is involved. A ruptured hydraulic line or fitting can produce a stream of fluid into an open furnace, onto molten metal, or other hot surfaces. And, if the fluid is petroleum oil, a significant fire can ensue.

Because of the fire potential in many metal producing facilities, fire-resistant fluids were developed. The term "fire-resistant" does not mean that the fluid is non-flammable: under certain conditions, any fluid will burn. A fire-resistant hydraulic fluid will resist ignition, while petroleum oil ignites quickly and propagates a blazing flame. Factory Mutual (FM) test and approve products to evaluate the fire hazard. FM Approved® products indicate that the fire hazard has been reduced to an acceptable level. FM Approved® industrial fluids provide customers with an accurate means to evaluate and select fluids based on their fire-resistant characteristics.

In addition to fire-resistant properties, a hydraulic fluid must be chosen for its lubrication, corrosion resistance, oxidation stability, seal compatibility and viscosity, just as is the case for selecting non-fire resistant fluid. Today, metal producing facilities are safer places to work due to fire resistant hydraulic fluids.

As with any hydraulic fluid, the best way to select a fire-resistant hydraulic fluid is to work closely with the fluid manufacturer who will analyze the operation, noting the pump manufacturer and model number, maximum operating pressure, pump rpm, reservoir temperature and capacity and the type of fluid being replaced. With this approach, the right fluid will be selected for the system and provide the maximum performance, safety and economy.

Once the proper fire-resistant hydraulic fluid has been selected, the hydraulic system must then be converted from petroleum oil or other type fluid to the fire-resistant hydraulic fluid. Correct installation ensures maximum performance and safety. The conversion procedure can be obtained by the fluid supplier. The conversion procedure should be followed very carefully to avoid hydraulic fluid related issues due to contamination.

Reputable fluid suppliers will provide regular analysis of samples as a service to their customers. This valuable service can prevent fluid related issues before they occur.

A manufacturing facility free from catastrophic fire means the most important asset, the employees, have a safe place to work; capital investment is protected and production and income are continuous due to the fact the risk from fire has been reduced. ■

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