

**LUBE**

# TECHNI-GRAM



**FROM :**

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**July 2005**

## CHOOSING THE RIGHT HYDRAULIC FLUID

It is little wonder that questions continue to arise over which fluid is the proper recommendation for a customer's hydraulic application? While in days past, most hydraulic systems would operate satisfactorily using a variety of fluids, today's hydraulic systems operate at high pressures and temperatures, and thus, require special attention and superior fluid protection to promote long and healthy component life.

### **Choosing The Proper Lubricant**

A hydraulic fluid produces power through pressure and flow. As the mainstay of power transmission, the fluid used in the hydraulic system is directly linked to the performance of the hydraulic system and its overall production. In days past, it wasn't unusual to find one operation using engine oil in their hydraulic system, while another might be using automatic transmission fluids (ATFs), tractor fluids, rust and oxidation (R&O) hydraulic/turbine oils or anti-wear (AW) hydraulic fluids.

Today, anti-wear (AW) hydraulic fluid is the number one recommended fluid by pump manufacturers. A superior AW hydraulic fluid will demulsify or separate itself from water so the water can be drained off daily. AW fluids protect against wear in the presence of water and maintain fluid viscosity in high temperatures. Superior AW hydraulic fluids provide added protection against water-related corrosion, extended component life and consistent and reliable hydraulic pump performance.

Engine oils have traditionally been used in hydraulic sumps when maintenance practices have not allowed for daily water removal. Water contamination is inevitable in a hydraulic system. Engine oils have more tendencies to emulsify or combine with water, but do not have the proper additive package to maintain stability during consistent exposure to water. This can result in higher viscosity levels, pumpability problems and inadequate wear protection...all of which can result in increased downtime and higher maintenance costs.

Automatic Transmission Fluids (ATFs), also emulsify, but are considered a better choice than engine oil for a hydraulic system. These fluids provide better wear protection and oxidation resistance. But many of today's ATFs are too low in viscosity for use in heavy-duty applications.



*... to keep it running*

Tractor Hydraulic Fluids (THFs), also provide good wear protection and can withstand some water contamination. Some viscosity grades of THFs may be too high for use in conventional hydraulic systems. It's always important to check the manufacturer's recommendation for temperature and viscosity grades.

### **Anti-Wear Versus Non-Anti Wear**

The purpose of anti-wear additives is to maintain lubrication under boundary conditions. The most common anti-wear additive used in hydraulic oil is Zinc Dialkyl Dithiophosphate (ZDDP). In days past, the presence of ZDDP raised concern, as some early anti-wear chemistry attacked some metals...particularly yellow metals. Stabilized ZDDP chemistry such as that found in SWEPCO's 700 Series Hydraulic Oils has overcome these earlier shortcomings, making the anti-wear additive essential to the fluid used in any high-pressure, high-performance hydraulic system, such as those fitted with piston pumps and motors.

### **Proper Viscosity Grade**

The definition of viscosity is the measurement of an oil's resistance to flow...commonly referred to as the oil's weight. This is especially important in a hydraulic system, which depends on fluid flow for the proper transmittal of power. Improper viscosity selection can result in accelerated wear, loss of power, slow or sluggish reaction time, seized control valves, starved or cavitating pumps and blown lines. A multi-viscosity hydraulic oil, such as SWEPCO 703 Multi-Grade Anti-Wear Hydraulic Oil, has become much more desirable and is being used more frequently because of its high viscosity index and superior high and low temperature protection.