Quaker
It's what's inside that counts.

METALWORKING

CASE STUDY

DIE CASTING

QUINTOLUBRIC® 888-68

CHALLENGES

An automotive parts manufacturer was looking to replace the water glycol (HFC) fire-resistant hydraulic fluids being used to operate their die casting equipment. The fluid being used:

- Had the typical lubricating properties of water glycol fluids
- Pump wear and pump lifetime were unacceptable to this manufacturer

To help improve operations, the manufacturer tested QUINTOLUBRIC® 888 polyol ester (HFD-U) fluids as a potential replacement.

THE SOLUTION

First, Quaker helped the manufacturer to understand the advantages of changing from water glycol (HFC) fluids to polyol ester (HFD-U) fluids. These advantages include:

- Superior lubrication properties
- Easier waste treatment/waste disposal/reclamation
- Lower vapor pressure
- Reduced fluid maintenance
- Inherent fire propagation resistance
- Environmentally friendly
- Improved corrosion protection

Although HFD-U fluids can cost up to 1.5 – 2 times the cost of HFC fluids, the reduction in pump wear and waste treatment costs that a manufacturer can experience with HFD-U fluids more than makes up for the initial cost difference. HFD-U fluids are lighter than water, which allows them to be removed from waste water streams by skimming. HFD-U fluids are much easier to remove during waste treatment processes than HFC fluids, which significantly reduces a manufacturer's cost and waste.

An HFC fluid will completely mix with water (left beaker). Removing the organic load from the water requires extensive chemical processing as well as COD concerns. HFD-U fluids readily separate from water (right beaker).

Next, Quaker suggested using QUINTOLUBRIC® 888-68 in six of the manufacturer's high pressure die cast machines for the casting of crankcases, timing chains and intake manifolds. Three of the machines held 1,200 liters each and three held 3,400 liters each. After a trial period of several months, Quaker was able to show:

- Reduction in leakage by 28%
- Reduction in electricity consumption by 15%
- Increase of production efficiency by 5%

(Left) Excessive/premature vane wear.

(Right) Example of the various areas of rust that were detected.

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DIE CASTING

QUINTOLUBRIC® 888-68

THE PRODUCT

QUINTOLUBRIC® 888-68 is designed to replace anti-wear, mineral oil-based hydraulic fluids used in applications where fire hazards exist. QUINTOLUBRIC® 888-68 can also be used in environmentally sensitive hydraulic applications without compromising the overall hydraulic system operations. This fluid does not contain water, mineral oil, or phosphate ester, and is based on high-quality, synthetic, organic esters and carefully selected additives to achieve excellent hydraulic fluid performance. QUINTOLUBRIC® 888-68 offers the lubrication level of premium, anti-wear hydraulic oils, and can be used with hydraulic components from all major manufacturers.

PROCESS AND EQUIPMENT

Parts	Crankcase, timing chain cover, intake manifold
Material	Aluminum
Strike Pressure	800T / 2000T
Application Pressure	500 - 750 Bar
DCM OEM	LK Machinery

Power savings data from one 800T die cast machine

	WATER GLYCOL	QUINTOLUBRIC® 888-68	POWER SAVINGS
Monthly power consumption (Kw*h)	13906	12069	13.2%
Power/min	0.67924	0.57935	14.7%
Power/shot	0.85470	0.77560	9.30%

THE EXPERTISE

Quaker was the first company to offer HFD-U fluids and has been the market leader in this type of technology. Quaker's current HFD-U fluids are based on both synthetic organic compounds and naturally occurring esters. QUINTOLUBRIC® 888 Series synthetic polyol esters and QUINTOLUBRIC® 855, which is based on natural esters, are industry leaders in ester-based technology. Quaker HFD-U fluids are readily biodegradable and have low aquatic toxicity, making them ideal for use where environmental protection is required. Quaker HFD-U fluids are globally available and give outstanding performance in fire-resistance, lubrication and long service life.

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