

# 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.

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%



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).



(Left) Excessive/premature vane wear.

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

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### 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.

### THE EXPERTISE

Consumables such as hydraulic fluids, die casting lubricants and plunger lubricants represent a major portion of the operation costs in a die casting plant. Proper selection and application of lubricants can increase productivity, reduce maintenance and extend equipment life. That is why G.W. Smith, a Quaker Chemical company, focuses on developing solutions with the highest performance without compromise, lubricants that sharpen your competitive edge. This case illustrates the importance of supplier relationship, support and correct fluid selection.

### 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%