

## Challenges

A major powertrain manufacturer was using an old soluble oil technology in four of their coolant systems. The soluble oil coolant usage for the facility was 247,926 gallons equating to \$2,097,454 for soluble oils alone. In April 2008, Quaker Chemical was awarded the Chemical Management contract at this site and wanted to show the manufacturer that switching from their old soluble oils to premium fluids would eliminate the following problems:

1. **Poor microbiological and fungal resistance resulting in:**
  - Increased sump side additive costs (pH adjusters, biocides, fungicides, etc.)
  - Foul odors associated with live and dead bacteria and fungi
  - Increased manpower to make pesticide additions
  - Increased risk of downtime due to the blinding of filtration devices
2. **Poor mycobacteria resistance**
3. **Poor emulsion stability resulting in:**
  - Increased dump schedule
  - Increased downtime due to unscheduled dumps
  - Increased manpower to re-charge central systems
  - Increased system cleanout costs
  - Increased additive costs
4. **Lower tolerance for tramp oil contamination, excessive centrifuging due to high tramp oil levels can result in a deterioration of the emulsion stability.**
5. **Poor corrosion protection resulting in:**
  - Increased scrap
  - Increased additive costs
6. **Increased manpower to cycle machines over down periods**
7. **Increased waste treatment costs due to higher discharge levels**
8. **Poor tool life**

## Providing Solutions

Quaker put together a proposal showing that although premium fluids cost more per gallon, the manufacturer would still achieve a chemical costs savings, as well as cost savings in the following areas:

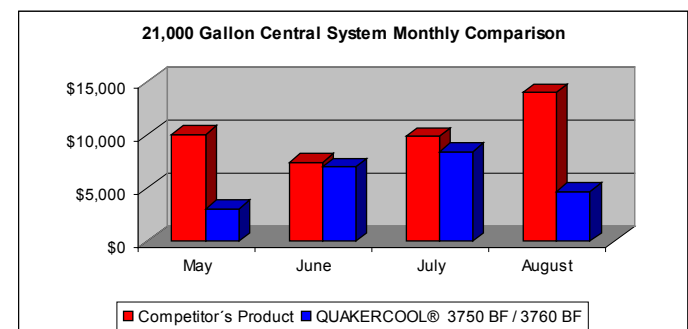
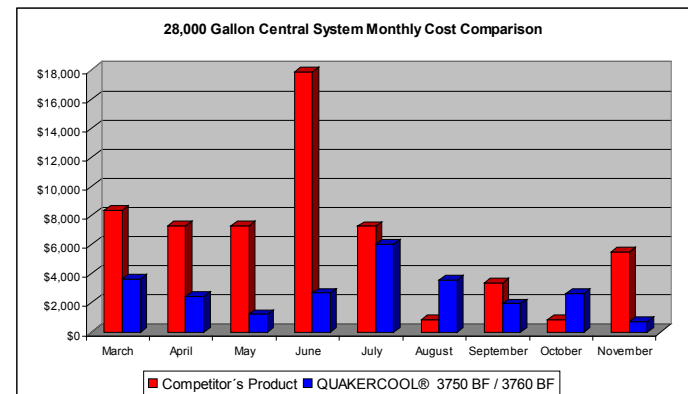
- Additives
- Manpower
- Tooling
- Waste treatment
- System cleanout
- Scrap

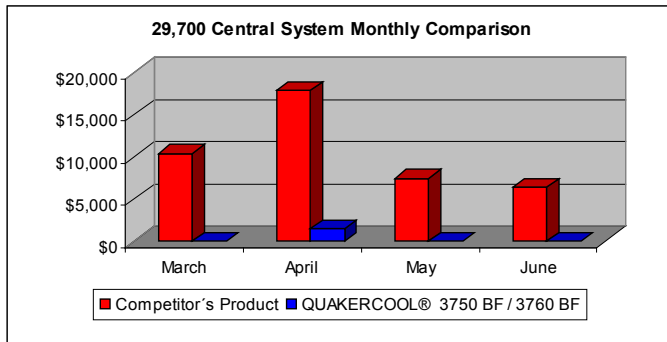
The manufacturer would also benefit from decreased downtime and improved productivity, along with a decrease in the health and safety concerns related to running soluble oil fluids.

With this proposal Quaker gained approval to begin converting the systems to QUAKERCOOL® 3750 BF/3760 BF. The chart below gives an overview of the annual cost savings that were achieved in the four central systems.

Central System (Gallons)	Competitor's Product	Quaker's QUAKERCOOL® 3750 BF / 3760 BF	Annual Cost Savings
34,000	\$122,162	\$44,146	\$78,016
28,000	\$78,195	\$33,429	\$44,766
21,600	\$124,260	\$69,584	\$54,676
29,700	\$126,621	\$8,140	\$118,481

Additionally, there were reductions in monthly costs as illustrated in the graphs below:





### Product & Process Expertise

Metalworking lubricants represent a very minor part of the costs in a metalworking process, typically less than 1%. This case illustrates the importance of correct fluid selection. The impact of the fluid can be a multiple of its costs, making the price of a metalworking fluid insignificant. That is why Quaker focuses on developing fluids with the highest performance without compromise, fluids that sharpen your competitive edge.

### Product Description

This product is a high-performance, emulsifiable metalworking fluid designed for light to medium-duty machining and grinding operations requiring a high degree of lubricity, cleanliness, cooling, and corrosion protection. It is especially recommended for the grinding of rings and rollers for bearings, as well as difficult machining and grinding operations on cast iron and steel.

### Process & Equipment

<b>Part:</b>	Input shafts, range sleeves and gears
<b>System Sizes:</b>	21,000 gallons 28,000 gallons 29,700 gallons 34,000 gallons
<b>Part Alloy:</b>	Steel
<b>Water Hardness:</b>	~400 ppm as CaCO <sub>3</sub>
<b>Concentration:</b>	4-6%
<b>Application Pressure:</b>	50 psi
<b>Filtration System:</b>	French System Filter with a chip conveyor & Henry Filter Systems with wedgewire drum and chip conveyors.
<b>Specific Operation:</b>	Steel Machining and Grinding