

Challenges

A manufacturer of automotive transmissions could not meet daily production requirements due to several problems related to machine tooling and coolant. Production problems occurring included:

- Frequent tool changes
- Severe wear on tooling from the broaching operation limited re-grinding operations and re-use of broach bars
- Monthly partial coolant system clean-out and recharging
- High additive usage due to bacteria

Providing Solutions

Introduction of Quaker's QUAKERAL® 370, a heavy duty, chlorine-free product yielded a substantial gain in tool life at lower coolant usage. This environmentally up-to-date product which uses Quaker's proprietary ester technology to replace harmful extreme pressure additives resulted in total process cost reduction for this particular operation. The use of QUAKERAL® 370 resulted in:

- Increased productivity per broaching tool from 1,700 parts to 4,800, representing tool savings of \$22,840.
- Extended number of re-grinds per broach bar which significantly reduced labor costs.
- Savings in coolant due to the elimination of partial systems recharges. Annual usage per circulating gallon went from \$1.92 down to \$0.292.
- Elimination of additives due to the bio-stable coolant. No biocides were needed.

Customer Reference

- **Rolls Royce Aerospace**
Approved CSS 129/131(Type A)
- **Ford New Engine Programs**
Approved Toxicology 116778 C2
- **Allied Signal**
- **Cosworth Engines**
- **Cummins**
- **GKN**
- **Perkin**
- **Toyota**
- **TRW**

OEM Reference

- Alfing
- Deckel
- Excello
- Gehring
- Giddings
- Grob
- Heller
- Honsberg
- Lamb
- Makino
- Mapal
- Mazak
- Mollart
- Nagel
- Toyota
- Varinelli

Product Description

QUAKERAL® 370 is based on advanced ester technology and suitable for machining Titanium, Aluminum, steel, alloy steels and Cast Iron. QUAKERAL® 370 can be used on all general metalworking applications as well as arduous operations such as:

- Broaching
- Creep feed grinding
- Gun drilling
- Hobbing
- Mapal reaming
- Turbine machining
- Cut tapping
- Neat oil replacement

Process & Equipment Info

Federal Broach	
Part:	Differential-Case
Part Alloy:	Ductile Iron
Tooling:	HSS M4
Concentration:	10%
Specific Operation:	Broaching

Product and 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.