

CASE STUDY



GRINDING

QUAKERCOOL® W ALCA BFF & QUAKERCOOL® OIL MF

CHALLENGES

A worldwide manufacturer of bearings was using a bi-component cutting fluid for production in a plant in Italy. They were looking to:

- » Improve surface finish
- » Reduce costs
- » Eliminate the need for tank-side additives
- » Use boron-free and formaldehyde-free products
- » Improve worker health and safety

THE SOLUTION

Quaker introduced its 2PAQ technology – a two-component, innovative technology, QUAKERCOOL® W ALCA BFF (alkaline phase) and QUAKERCOOL® OIL MF (an ester-based oil phase) for a test production run of 30.000 bearings. During the two week test, this world-class fluid:

- » Eliminated burning of bearing races and improved grinding machine cleanliness
- » Eliminated foam, bacteria and corrosion
- » Lowered fluid and additive cost by approximately 15%

Quaker was also able to show on an annualized basis a reduction in scrap rate of 0.8% due to improved surface quality, and a reduction in cost of 27.000€ due to the elimination of tank-side additives. In addition, workers appreciated that the products were boron-free, formaldehyde-free and mineral oil-free.

THE PRODUCT

2PAQ technology is a two-component product that involves an alkaline and oil phase, typically mixed into water to prepare emulsions suitable for machining and grinding operations. When mixed alone into water, the alkaline phase can also be used as a process cleaner, and when the cleaning solution becomes too saturated it can be reused for topping up the machining and grinding systems.

QUAKERCOOL® W ALCA BFF is an innovative, boron-free water soluble “alkaline phase” developed to perform a wide range of machining and grinding operations on most engineering materials. It is recommended for machining operations on steel, cast iron and aluminum alloys. It has a flexible dosage, and therefore can replace different kinds of metalworking coolants including synthetics, semi-synthetics, micro-emulsions and emulsions. It can also be used as cleaner. It should be combined with a Quaker “oil phase” to give a high performance machining or grinding micro-emulsion (unless being used as cleaner or synthetic).

QUAKERCOOL® OIL MF is a water soluble “oil phase” developed to perform a wide range of machining and grinding operations on most engineering materials. It is recommended for machining operations on

steel, cast iron and aluminum alloys. It has a flexible dosage, and therefore can replace a variety of metalworking coolants including semi-synthetics and emulsions. It should be used in combination with a Quaker “alkaline phase” to give a high performance micro-emulsion.

PROCESS AND EQUIPMENT

Part	Bearings
Material	Steel
Concentration	4% (3% for alkaline phase, 1% for oil phase)
Top up	0.5 - 1.0%
Water	30° TH
Specific Operation	Grinding

THE 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.