

## Non-Ferrous: Aluminum Rod Rolling

QUAKEROL® CCR 109 SW

### The Challenge

- An 8-stand Southwire type aluminum rod mill producing 3xxx, 4xxx, 5xxx, 6xxx and 8xxx series alloys, and has a caster that operates at 4.5 tons/hour, with a bar size of roughly 1,900 mm<sup>2</sup>
- This mill process only 3/8" or 9.5 mm rod, and the coolant system is <7,000 gallons

The customer uses well water to prepare and maintain the emulsion:

- Very little effort was given to emulsion control, with almost no on site testing
- Oil and make-up water were added sporadically and often in large slugs, as a result of poor rod quality

The customer wanted to convert to a new rolling oil so they could:

- Benefit from the supplier's technical expertise in aluminum rod production
- Improve control of emulsion parameters and maintain consistent throughput
- Reduce total rolling oil usage

### The Product

QUAKEROL® CCR 109 SW represents the latest generation of aluminum rod rolling oils developed by Quaker Houghton. The formulation couples outstanding emulsion stability with superior boundary and hydrodynamic lubricity without relying on fatty acids, often used in other rod mill rolling chemistries.

The product has superior emulsification performance for emulsion stability and consistency, excellent corrosion inhibition performance, low consumption rates, and low metallic soap formation tendency.

QUAKEROL® CCR 109 SW was specifically formulated for this mill after Quaker Houghton completed an extensive mill survey and in-depth conversations with operations, maintenance and plant management.

### The Benefits

After six months, the customer happily reported that QUAKEROL® CCR 109 SW had:

- Decreased the scrap rate by 25%
- Improved the aluminum rod production/gallon of oil from 8,000 to 14,000 lbs
- The overall cleanliness in the rolling mill has improved

### The Solution

Quaker Houghton earned an opportunity to conduct a trial on this mill following the successful conversion of four rod to strip mills in the same facility. The customer was appreciative of Quaker Houghton's technical service and analytical support during the strip mill conversions and understood that these benefits would transition nicely to the aluminum rod production operations.

From the start of the trial, QUAKEROL® CCR 109 SW provided excellent lubrication on the mill. The first bar transitioned through the mill to the coiler without difficulty, no slip, no refusals and no evidence of quality problems.

