Aluminum Hot Rolling

ALUSHIELD™ RHM-2000
CASE STUDY

ALUMINUM INDUSTRY

Challenges

An aluminum rolling mill with a conventional three mill hot line, which includes a breakdown reversing mill, an intermediate reversing mill, and multi-stand tandem mill, was looking to convert its coolant. The mill runs a wide variety of products, including can body and end stock, trailer roof and building products.

The aluminum producer decided to convert to ALUSHIELD™ RHM-2000. From the conversion they expected to see similar microbiological control with no biocide additions, improved lubricity performance and minimal coolant maintenance issues associated with the breakdown reversing mill coolant conversion.

Providing Solutions

Since the conversion to ALUSHIELD™ RHM-2000, no biocide additions have been necessary and no odor has been noted following the conversion. Mill operators have commented that the overall mill cleanliness improved following the implementation of ALUSHIELD™ RHM-2000.

Prior to the conversion of the ALUSHIELD™ RHM-2000 product, tank-side additions accounted for 11% of the total oil usage. Following the conversions, no tank-side additions have been necessary and the total oil consumption has been reduced by 22%.

Dynamic Equilibrium has facilitated consistent performance on a day-to-day basis, resulting in only minor polishing dumps to control ash. Because the previous product required frequent biocide and rolling additive additions to control coolant parameters, iron levels resulting from corrosion often exceeded 50 ppm. By eliminating the need for these additions, the coolant iron levels have reduced to <20 ppm.

Product Description

ALUSHIELD™ RHM-2000 represents the next generation of rolling oils for the aluminum industries' hot reversing mills. This formulation couples outstanding emulsification boundary and hydrodynamic lubricity with a low propensity for soap formation and excellent bio-resistance properties. This chemistry represents the first developed using our Nash Laboratory Rolling Mill.

Coupled with dynamic equilibrium, balancing system inputs and outputs, this chemistry affords the lowest total cost system in our industry. ALUSHIELD™ RHM-2000 offers the following benefits:

- **Outstanding boundary and hydrodynamic lubricity performance**
- **Superior emulsification performance for stability and consistency of emulsion**
- **Low metallic soap formation tendency**
- **Excellent corrosion inhibition performance**
- **Demonstrated bio-resistance under field conditions**
- **Low oil consumption rates**

Process & Equipment

Operation:	4-hi reversing mill
Capacity:	1+ billion pounds per year

Product and Process Expertise

Rolling lubricants represent a very minor part of the costs of aluminum rolling operations, typically considerably less than 1%. This case illustrates the importance of using the leverage of advanced lubricant technology to achieve substantial productivity increases while at the same time reducing total applied cost. That is why Quaker focuses on developing products with the highest performance without compromise, products that sharpen your competitive edge.