

## Cold Rolling : Mottle Free DCR Steel Surface

QUAKEROL® DR 20

### The Challenge

A major American double reduction steel coil rolling mill, who has been producing high quality steel for over a century, was seeking to decrease their total cost of operation. Their requirements included:

- Maintain the quality achieved by the incumbent rolling oil
- Realize an overall goal of at least a 20% reduction of cost per ton
- Sustain a steel gauge reduction of up to 30%

### The Solution

To meet the challenges, Quaker Houghton developed QUAKEROL® DR 20, a customized semi-synthetic rolling oil based on the trial goals. Quaker Houghton utilized its global R&D network and corroborated with the customer management in an effort to meet the performance requirements needed for the product.

In addition, when the fully fatted rolling oil was replaced with QUAKEROL® DR 20, mill cleanliness improved resulting in reduced mill hangup and excess fluids on the mill floor. Having a cleaner mill decreased the potential for drop down landing on the strip and for defect marks.

### The Product

QUAKEROL® DR 20 is a semi-synthetic rolling oil for use on double cold reduced tin products with recirculating solution tanks. A semi-synthetic base lubrication package is used to maximize rolling performance as well as provide improved mill cleanliness. The formula contains extreme pressure and boundary additives that optimizes lubrication and surface quality during the rolling process. The emulsifiers create a stable emulsion to maintain a consistent oil film in the roll bite and ultimately deliver a uniform surface. This rolling oil provides excellent lubrication allowing for low concentration application. Its low pour point allows for easy handling and storage of the neat oil.

### The Benefits

As a result, QUAKEROL® DR 20 surpassed the targets and was able to:

- Improve quality by achieving a mottle free surface
- Reduce fluid consumption by 74%
- Lower operating concentration from 5.5% to 1.5% due to the better lubrication package in the neat oil
- Provide an overall cost savings of \$70k in annual product usage

### Duo Rolling Mill Trial Details

Target concentration: 2.5 – 3.0%

	COMPETITOR	QUAKER
Operating Concentration	4.5% - 5.5%	1.0% - 1.5%
Product	Animal fat	Semi-synthetic
Fluid consumption	1.01 lb/ton	0.26 lb/ton

