Hot Steel Rolling

QUAKER QUAKEROL HB-9 CASE STUDY

STEEL INDUSTRY

Challenges

A hot mill was looking for improvements on its 6 stand 60" Hot Mill with Coil Box. The mill was in the process of testing lubricants and was experiencing the following problems:

- **Severe slipping**
- **Severe peeling issues with certain lubricants**
- **Salt and pepper scale defects**
- **No work roll application improvements**

To help improve their operations Quaker proposed using QUAKER QUAKEROL® HB-9, a high performance, cationic rolling lubricant.

In addition to QUAKER QUAKEROL® HB-9 Quaker proposed the use of a zoned back-up roll application and Quaker's Mobile Industrial Dispersion Application System (MIDAS) to achieve the full benefits of QUAKER QUAKEROL® HB-9. Quaker wanted to show that by using QUAKER QUAKEROL® HB-9 and installing a MIDAS System, there would be visible improvements in the following areas:

- **Load reductions (reduction in oil concentration)**
- **Reduction in roll peeling**
- **Reduction in salt and pepper scale defects**
- **Reduction in roll peeling on lubricated stands**

Competitor's Oil Consumption

QUAKER QUAKEROL® HB-9 Consumption

Providing Solutions

Since switching to QUAKER QUAKEROL® HB-9 and placing a permanent MIDAS System on F1, the Hot Mill has seen drastic improvements in its operations in the following areas:

- **Significant load reductions**
- **F1 rolls no longer peeled**
- **Elimination of salt and pepper scaling defects**
- **Elimination of roll peeling on lubricated stands**
- **Pickle line speed increased by 200 fpm**

In addition, based on the success of F1 the customer placed a MIDAS system on F2 and F3 and is in the process of installing one on F4. The customer has also been able to significantly improve drafting practices.

Product Description

QUAKER QUAKEROL® HB-9 is a blend of sulfurized esters and petroleum oils. A combination that provides high temperature and extreme pressure lubrication, and anti-wear properties for load reductions and improved roll life in the hot rolling of steel strip and structural shapes. This product exhibits excellent dispersion characteristics in a wide range of water chemistries, and is typically dispersed at 0.3% in water.

The Quaker Mobile Industrial Dispersion Application System (MIDAS) is an extremely accurate, positive displacement pump system which can stand alone or be tied into level two control systems. The system helps hot mills to achieve all the benefits from the QUAKER QUAKEROL® Hot Rolling Lubricants.

Process & Equipment

Hot Mill With Coil Box

Operation:	6 Stand 60" Finishing Mill
Capacity:	1,200,000 tons per year
Lubrication:	Lubricant applied on F1-F3
Application:	Mobile Industrial Dispersion Application System (MIDAS)

Product & Process Expertise

When applied properly, roll-bite lubricants represent a very minor part of the costs in the steelmaking process, typically less than 1%. Investment in application and control equipment pays for itself quickly. The impact of roll-bite lubrication is usually a multiple of the fluid and equipment costs making the price virtually irrelevant. That is why Quaker focuses on developing products with the highest performance without compromise.