

Steel:

Increase Efficiency in Pickling Operation

ACTIVOL® 1803

The Challenge

A major producer of high quality steel sheet wanted to increase efficiency in its pickling operation. The company was already using an acid inhibitor and believed that better inhibitor technology could:

- Decrease acid consumption
- Lower total costs
- Improve product quality

The Product

ACTIVOL® 1803, a joint offering from Harry Miller Corporation and Quaker Houghton is the premier additive for hydrochloric acid pickling baths in steel mills. It fulfills all the requirements of a good pickling inhibitor: descaling, high efficiency, durability, rinsability, reduced acid consumption, fume reduction and uniformly pickled surfaces. This product provides a high degree of restraining action to the attack of hydrochloric acid on base steel, and does not retard the descaling rate of oxides on steel surfaces. The product's wetting properties allow a uniformly pickled surface with shiny surface and minimal edge corrosion, free from smut or ingrained scale.

The Solution

TOTAL BENEFITS EQUAL TO 8 TIMES INHIBITOR COSTS

| | |
|--|-----------------------------------|
| Acid consumption with previous inhibitor | 3.98 g/ton |
| Acid consumption with ACTIVOL® 1803 | 3.60 g/ton |
| Savings in acid consumption | 194,000 g/year \$70,000 g/year |
| Additional cost of ACTIVOL® 1803 | \$1/g \$9,000 per year |

Equipment References

- Pro Eco
- Danieli-Wean

The Benefits

The introduction of ACTIVOL® 1803, a joint offering from Harry Miller Corporation and Quaker Houghton resulted in the following benefits:

- High degree of restraining action to the attack of hydrochloric acid on base steel
- Did not retard the descaling rate of oxides on steel surfaces
- Uniformly pickled surface, free from smut or ingrained scale provided by wetting properties
- Uniformly pickled metals with a shiny surface and minimal edge corrosion
- Reduced hydrogen evolution at the solution/steel interface reduces hydrogen embrittlement
- Pleasant odor that facilitated manual addition
- Stable pickling solutions for extended time periods at elevated temperatures without losing inhibiting action

Process and Equipment

| PRODUCT TITLE | PRODUCT INFORMATION |
|---------------|--|
| Operation | 84 inch, hydrochloric acid, continuous pickle line |
| Capacity | 1,000,000 tons per year |

Customer References

- ArcelorMittal
- NLMK
- Severstal
- US Steel
- PT Essar
- World Class Processing
- Tata Steel
- Nova Steel
- Ternium
- Worthington Steel
- Voss Steel

