

Tinplate Production : Reduces Total Cost of Ownership for Hydraulic Powered Units

HOUGHTO-SAFE® 419-R

The Challenge

A facility of a major global steel producer primarily produces tinplate strip for the food and beverage packaging industry. Their #9 tandem mill is a 5 stand 4-high mill that uses hydraulic power to operate the automatic gauge control system (AGC). The AGC system controls the thickness or gauge of the tin strip. The incoming thickness of the strip is typically 2.2 mm and is ultimately reduced to 0.18 mm. The AGC system is used to help make the gauge reduction and operates at pressures ranging from 300 bar up to 350 bar.

Mill maintenance management was experiencing AGC equipment reliability issues and higher than budgeted costs with use of the incumbent water glycol hydraulic fluid. Specifically, there were issues with high fluid temperatures and excessive hydraulic fluid pump vibration. Fluid temperatures were averaging 57°C. By measuring the vibration through the use of an accelerometer, the vibration on the pump was unusually high. Additionally, issues with build-up of sludge around screw pipes was experienced and led to increased maintenance hours associated with removal of the sludge prior to preventative maintenance repairs.

The Solution

Based on the reliability issues experienced with the incumbent fluid, Quaker Houghton recommended a comparative ASTM D7043 pump wear test be conducted. Based on the results of the test data and system survey an evaluation of HOUGHTO-SAFE® 419-R was conducted.

The Benefits

- 27% reduction in pump vibration resulting in reduced pump wear and costs associated with pump rebuilds and component replacement
- Average fluid temperature decrease from 57°C to 48°C resulting in reduced energy costs
- Less build-up of sludge on screw pipe components has led to reduced maintenance time and costs



The Product

HOUGHTO-SAFE® 419-R is a water glycol type fire resistant hydraulic fluid designed to meet the exacting requirements of modern industrial hydraulic systems. HOUGHTO-SAFE® 419-R is Factory Mutual Approved. It protects personnel and property from accidental fire and may lower insurance premiums. Its low pour point provides excellent stability in cold weather applications and its high viscosity index enables use over a wide temperature range.

