

Failed Expansion Joints Cause Unplanned Outages At Ethanol Plant

Application:

In the process of making Ethanol, corn is pulverized and introduced into a slurry. This slurry travels through a series of tanks, pipes, and pumps before being refined into fuel.

Problem:

An ethanol facility had many expansion joint failures in their corn slurry lines. Due to the fact the slurry runs at a high velocity and is abrasive, the original expansion joints were not designed correctly and didn't last long enough for the customer. The abrasive slurry was causing the inside of the existing joint to wear away and expose the nylon reinforcement, eventually causing the joint to fail. These failures caused costly unplanned shutdowns while the customer replaced joints and cleaned up the hazardous area around the failure.



Solution:

Our Engineering Group worked with our distributor and the plant to create a design to enhance the reliability and function of the expansion joint. We did this by making two significant changes to the existing design. The first was to include an abrasive resistant liner made from gum rubber, and the second was to change the arch style from wide open to a filled smooth bore to reduce turbulence.

