

Eastman technical support helps Indonesian company update its operations

Eastman helps textile plant improve heat transfer system design to maximize production

Problem

The PT Dewasutratex textile factory in Bandung, Indonesia, has been a loyal user of Eastman Therminol® heat transfer fluids for almost five decades. During a routine maintenance visit to the plant in 2019, Eastman's technical experts observed that the heat transfer fluid being used was undergoing oxidation due to higher temperatures in the system's expansion tank. This was a significant concern as oxidation leads to the formation of larger molecules that amalgamate, resulting in sludge. As the fluid's viscosity progressively increases, this sludge acts as a barrier, giving rise to corrosion that can impede the system's performance — much like plaque obstructs human arteries. Over time, the accumulation of sludge results in a permanent reduction in heat transfer efficiency and clogged lines, decreasing plant throughput and increasing fuel consumption.

Analysis

Despite the plant having continuously expanded its production capacity since its inception, the heat transfer system had not been adjusted to accommodate these heightened demands. Therminol is engineered to enable equipment to operate at elevated temperatures with reduced pressure, yet operators had not factored in the extent of the facility's growth. The temperature of the fluid in the expansion tank was recorded at 140°–150°C, whereas oxidation is minimized at temperatures around 80°C. Although Therminol 55 offers exceptional resistance to oxidation, Eastman's technical experts discovered that sludge was forming due to the system functioning beyond its original design specifications.

Solution

Eastman's experts found that improving the expansion tank and deaerator buffer tank design bolstered system operation. The implementation of these design improvements aided in regulating the fluid temperature in the expansion tank, ensuring it remained below 80°C. This substantial reduction in temperature mitigated degradation from oxidation and sludge formation. A fresh supply of Therminol 55 fluid was also introduced into the system. Together, these improvements played a pivotal role in limiting sludge and other fouling agents, allowing the fluid to flow freely. Due to the unique synthetic-aromatic chemistry of Therminol 55, the heat transfer system at PT Dewasutratex can experience superior, long-term oxidation resistance along with optimal output and fuel consumption. Continued local post-service support has kept the system running optimally.

"We appreciate the technical support provided by Eastman in identifying the fluid oxidation degradation issues and helping us solve them," said Mr. Jo Gasyanto, director of PT Dewasutratex. "This helped us enhance Therminol 55 fluid life, improve heat transfer efficiency and decrease fuel and energy consumption. We are very satisfied with the performance of Therminol 55, which has excellent product quality, supply chain reliability and after-sales service, and we would highly encourage others to use it for longer fluid service life."



The PT Dewasutratex textile factory in Bandung, Indonesia.



Inside the textile factory.

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