



ENVIRONMENTAL TECHNOLOGY

Chemical company saves over \$225,000 in first year

Eastman Chemicals Kingsport Tennessee production plant were experiencing problems with leakage of the mechanical seals on their cellulose esters pumps.

The seal originally installed was a competitors component knife edge bellows seal with an API 02 seal support system. The seal bellows was becoming clogged with process fluid and wide non-concentric wear was found on the stationary seal face from the radial movement of the lobes in worn pump bushings. The bellows in the seal was potentially not rated for the excessive pressures seen during 'dead head' conditions caused by the pump discharge clogging. The process fluid was a thick, viscous, acetic based cellulose esters and during a 'dead head' condition the pump seals could experience full discharge pressures of up to 180 psi. The pump had to be removed from service 18 times between January 2011 and June 2012 as the seal was leaking at a cost of \$233,046. The customer turned to AESSEAL® for an alternative solution.

AESSEAL® recommended replacing the seal with an SCS knife edge pusher cartridge seal along with the API Plan 02 seal support system. Moving to a cartridge seal would simplify installation and eliminate installation errors could occur from incorrect mounting of the different elements of the component seal option. The pusher design is more suitable for the high pressures that can occur in the 'dead head' condition. In addition to this the seal interface is 0.75" closer to the power end of the pump and therefore the amount of radial movement was reduced. The new seals were installed in July 2012 and were in service for 2 years before any leakage was detected and the seals removed. Currently the seals are removed from the pump approximately every year, but since 2015 there have only been three documented instances of leakage. The shut down is mainly for high pressure cleaning of the pump and associated pipework. The cost savings associated with this new sealing solution were \$226,829 in the first year alone. Since this first installation an additional 18 other pumps have been successfully upgraded in the same way.

'\$226,829 savings in first year'

Industry:	Chemical
Product:	SCS
Application:	Cellulose Ester Pump
MTBF Increase:	500-1100%
Savings:	\$226,829 in year 1
Reference N.O:	12052021-FDE01



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