

Case Study: Mining Garlock ONE-UP® Diaphragms



INDUSTRY

Mining

CUSTOMER

A precious metals mining company which emphasizes reliable equipment and a solid maintenance schedule to keep everything running smoothly.

BACKGROUND

Processing precious metals from the time it comes out of the mine until it is made into concentrated product ready for sale is a very tedious process. While most of the customers' process equipment runs well, they felt as though they could get better diaphragm life out of their Dorr Oliver ODS pumps. The diaphragm pumps operate at 20+ hours a week outside from 15°F up to 100°F with an inlet pressure of 40psi. The media typically consists of a slurry containing 70% Hydrofluoric acid. They used Hypolan™ (registered trademark of DuPont) for years until it was discontinued then tried using commercial PTFE and EPDM as replacements.

CHALLENGES FACED

The diaphragm life varied from 1-4 weeks. Each time the diaphragm failed, the maintenance department would have to work on the pumps for 6-8 hours to gear up, take apart, clean and replace the diaphragms. The job requires 2 people due to the size of the pump and for safety reasons. While the extended downtime greatly affected production, the biggest concern was their employees' exposure to highly corrosive acids while rebuilding/repairing their pumps. In order to improve safety and increase productivity, another avenue needed to be explored.

OPERATING CONDITIONS

1. Temperature: 15°-100°F (-9°- 38°C)
2. Application: Precious metals processing
3. Media: 70% hydrofluoric acid
4. Pressure: 40psi

SOLUTION AND BENEFITS

The company's head of maintenance sought out a better performing diaphragm and came across the Garlock ONE-UP® diaphragm which uses expanded PTFE bonded to an elastomer backer. Initial trials started shortly after making contact. Garlock ONE-UP® Diaphragms were tested for 6 months on one of the pumps without failure, from there the end-user switched out all of the diaphragms that were having issues.

They are now on a routine maintenance schedule where the ONE-UP® diaphragms are replaced every 6 months. This led to many positive outcomes which include less downtime for production, reduced maintenance time which saved the company thousands of dollars, less wear on the pumps and their system due to no diaphragm failures which could lead to quality issues and higher processing efficiency. The biggest improvement of all was the reduction in time that their employees were exposed to highly corrosive acids while rebuilding/repairing their pumps. Safety is a big concern when working with hazardous chemicals.

For more information, please visit:

<http://www.garlock.com>

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