



CH2MHILL

Applied Sciences Laboratory

Case Study

Industrial Parts Failure Investigation

An industrial client was replacing thousands of dollars of production parts monthly due to o-ring failures on the equipment at one of their production plants. ASL chemists were contracted to determine why the failures were occurring. The investigation involved examining failed parts, contacting manufacturers and materials specialists, and interviewing several employees at the Client's facilities. One of the early findings was that the failures were not occurring at another of the Client's nearby facilities. A chemical sampling plan was developed and presented to the Client. The sampling plan involved collecting a number of various types of samples which might provide indications as to why the failures were occurring. Control samples were collected from the facility where no failures were experienced.

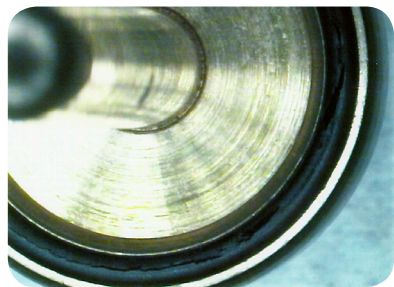
After the collection of the initial samples, and further discussions with the part manufacturers, one potential chemical of concern was identified to be present in the compressed air supply. A bench-scale test was developed to verify the potential source of part failure. After collecting data from the bench scale study for one week, the cause of the failures was identified. ASL chemists continued to work with the Client's engineers to procure a small-scale pilot system for removing the contaminant. Additional testing of the pilot system verified that the contamination source was removed, and no further failures on the pilot test system were observed. The client subsequently installed additional equipment at their manufacturing site to eliminate the parts failures.

Contacts

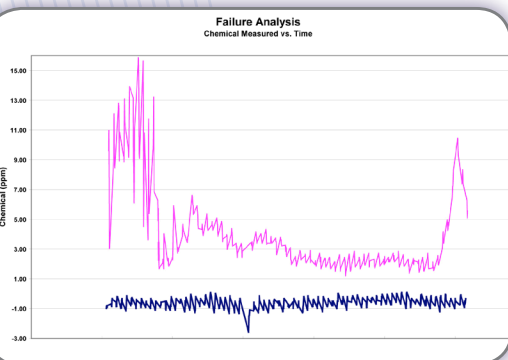
For more information on this and other services CH2M HILL's ASL can provide, please contact:

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Production parts were disassembled and inspected throughout the investigation.



Chemical measurements were collected continuously over time. The data was correlated with various process data and other chemical measurements.