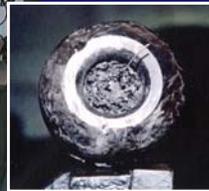


Component Analysis

Primary focus is to analyze failed API components from the Fleet. Complete in-house capabilities permit a full failure analysis without dependence on outside activities. This allows for a rapid response in determining if there is a Fleet safety issue. The lab is also utilized to certify manufacturing procedures and to troubleshoot production problems for both in-house efforts and for contractors making our gear. Additional efforts include the investigation of new materials, coatings, nondestructive inspection methods, and fabrication techniques for application to API equipment.

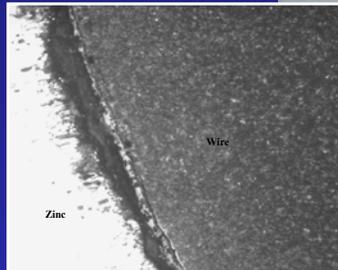


Digital macro- and micro-photographic records of specimens are captured with a mounted camera, stereo microscope, and optical metallurgical microscope



Macro photograph of failed purchase cable

Metallographic sample viewed on optical microscope illustrating diffusion bonds between poured zinc and steel wires of purchase cable



Spark optical emission spectrometer analyzes metals to certified chemistry

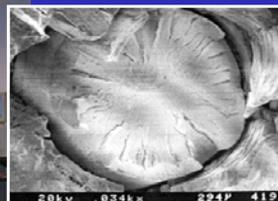


Image from scanning electron microscope of failed purchase cable wire

Scanning electron microscope and energy dispersive analysis workstation are utilized for detailed, high-magnification visual examination and