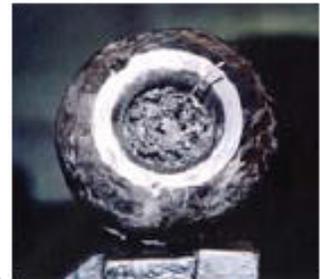


## Component Analysis

The Component Analysis Laboratory investigates new materials, coatings, specialty materials, and fabrication and treatment techniques for API components and other equipment. Laboratory personnel work with mechanical engineers to design prototypes, resolve design problems, and overcome manufacturing hurdles. The laboratory can provide complete metallurgical examinations in a secure environment. Its primary focus is to analyze failed API components provided by the Fleet.

Equipment in the laboratory includes a scanning electron microscope and energy dispersive workstation used for detailed high-magnification visual examination and micro-chemical analysis. Optical microscopes provide digital macro- and micro-photographic specimen records. Other equipment includes a spark optical emission spectrometer, which analyzes metals to certified chemistry.

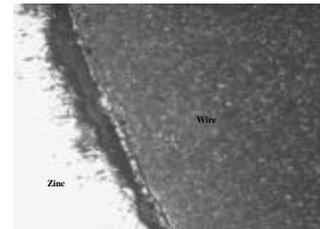
In-house capabilities assist Component Analysis personnel to perform full failure/metallurgical analyses without dependence on outside activities. Consequently, rapid response times are no problem in resolving Fleet safety issues. The laboratory also certifies manufacturing procedures and troubleshoots production problems for both in-house and contractor-provided efforts. Additional efforts include the investigation of new materials, coatings, nondestructive inspection (NDI) methods, and fabrication techniques for application to API equipment.



Macro photograph of failed purchase cable



Scanning electron microscope and energy dispersive analysis workstation



Metallographic sample viewed on optical microscope



Image from scanning electron microscope of failed purchase cable wire

Component Analysis Laboratory personnel have access to all of the facilities in the Environmental Test Laboratory and NAVAIR Lakehurst's Manufacturing and Prototyping Facility. Consequently, complete destructive testing capability for the evaluation of material properties is available to mechanical/metallurgical designers and manufacturers. The laboratory can also provide certified chemical analysis of metals and some non-metals, perform metallographic analyses to determine grain sizing and grain flow for manufacturing purposes, and perform failure analyses on products in the field.

### **Partnering Opportunities**

Several mechanisms exist for partnering with NAVAIR Lakehurst. These include cooperative research and development agreements (CRADAs), commercial services agreements (CSAs), and education partnership agreements (EPAs). Under a CRADA, Lakehurst engineers and scientists work cooperatively with their peers in industry or academia on mutually beneficial research and development. The Navy has been given statutory authorization, via CSAs, to use Navy facilities to perform specific types of work for private parties. EPAs allow collaboration between NAVAIR Lakehurst and educational institutions.

### **Potential Applications**

The Component Analysis Laboratory's capabilities and equipment, including its scanning electron microscope with energy dispersive spectroscopy, optical emission spectrometer for metals analysis, and energy dispersive x-ray fluorescence spectrometer for metals and non-metals, are available to engineering support companies, small manufacturing facilities, universities, and colleges to evaluate metallic and nonmetallic materials and perform quality assurance reviews. Use and operations of the instrumentation will be coordinated and managed by Component Analysis Laboratory personnel.

#### **For More Information**

##### **API Lab Manager:**

732-323-7043, LKHR\_API\_Lab@navy.mil

##### **Technical points of contact:**

732-323-1281/2285

732-323-2716

**NAVAIR Lakehurst's Aircraft Platform Interface Facility** was opened in August 2002. This 66,000-square-foot research and development facility supports the Navy's aircraft launch and recovery and support equipment missions. The technical capabilities covered by the 14 laboratories in this facility include power control systems; modeling, simulation, and data analysis/management; optical and lighting systems; integrated diagnostics; component evaluation; and applied technology. The synergism provided by collocating these teams of engineers, scientists, and technicians in one building further enhances this state-of-the-art facility.

**NAVAIR Lakehurst researches, develops, tests, and procures aircraft launch and recovery systems and support equipment for Navy and Marine Corps aviation.**