

Capabilities of the Failure Analysis Laboratory

Particle Impact Noise Detection (PIND)

Could detect a latent failure that could result in a loss of mission.

Scanning Electron Microscope (SEM)

Nondestructive tool used in failure analyses to examine samples at extremely high magnifications, high resolution, and with greater depth of field.

Real-time Radiography

Nondestructive examination of components, assemblies, or materials for internal problems that would otherwise go undetected and could lead to failure.

Thermal Vacuum Chamber

Used to expose payloads, mechanisms, or components to representative space conditions to assess their likely flight performance.

Screening for Parts and Components

Evaluation of parts and components against their respective specifications for which they were procured.

X-ray Fluorescence Spectroscopy

Used as a quick tool to determine the percent composition of solder used on boards, plating thickness, and qualitative chemical analysis of elements during investigations.

Optical Emission Spectroscopy

Verifies the chemical composition of metals. This can be critical in ensuring that the correct alloy is being implemented in the design application for which it is intended.

Fractography

Used during failure analysis of components as a tool in determining the cause of the fracture.

Metallographic Preparation

Aids in determining whether the material has been processed correctly and is therefore a critical step for determining product reliability and why a material failed.

Tensile Testing

Test specimen are submitted to verify/validate mechanical properties expected following heat treat operations. Fastener samples are submitted for Certification Validation Testing in accordance with NASA-STD-6008.

Bend Test

Determines the relative ductility of metal that is to be formed or the soundness and toughness of metal.

Double Shear

Verifies the ultimate strength of the part. These data are critical for the pyrotechnics design to ensure the proper energy is used to shear the pins in various applications.

Hardness Testing

Used for quality control on metal heat treatment, incoming material inspection, weld evaluations in steels and other alloys, grade verification for hard plastics, and failure analysis.