



ENGINEERING CERTAINTY FOR HIGH-RISK AEROSPACE, ENERGY, AND INDUSTRIAL PROGRAMS

LAB OVERVIEW

Element Broken Arrow has supported critical materials testing programs since 1966. Located in the Tulsa metropolitan area, the laboratory specializes in metallic and non-metallic materials testing, product qualification testing, and failure analysis for regulated and performance-driven industries.

The facility integrates mechanical, chemical, and metallurgical testing with an in-house machine shop and heat treat capability, enabling efficient specimen preparation, complex testing, and defensible reporting under one roof. As part of Element's global laboratory network, Broken Arrow delivers responsive local support backed by worldwide technical expertise and standardized quality systems.

ACCREDITATIONS & QUALITY

- ISO 17025 accredited through A2LA
- Nadcap accredited
- Experienced with OEM, industry, and customer-specific specifications

CORE CAPABILITIES

FAILURE ANALYSIS & CONSULTING

- Metallic and non-metallic failure analysis and root cause investigations
- SEM and EDS analysis with technical interpretation
- Corrective action support, third-party inspection, and expert witness services

MECHANICAL TESTING

- Tensile, compression, bend, and impact testing
- Fastener, shear, and double shear testing
- Pipe and pressure component mechanical testing
- Hardness and conductivity testing, including portable systems

PRODUCT QUALIFICATION TESTING (PQT)

- Structural and ultimate load testing
- Fastener, component, and assembly qualification testing
- Torque, bearing, and weld strength testing
- Pressure and hydrostatic testing to applicable codes
- Strain gauge installation and analysis
- Custom and non-standard qualification programs





CHEMICAL ANALYSIS & CORROSION TESTING

- Optical Emission Spectroscopy (OES) and ICP wet chemistry
- Corrosion testing to ASTM A262, G28, G36, G48, G67, and related methods
- Combustion analysis for carbon and sulfur
- Plating solution analysis and coating weight measurement

METALLURGICAL EVALUATION

- Microstructure, grain size, and cleanliness evaluation
- Macro and micro etching, ferrite count, and case depth analysis
- Corrosion damage assessment and surface characterization
- Specimen machining, heat treating, and tube-to-tube sheet qualifications

INDUSTRIES SERVED

- Aerospace and defense
- Energy, oil & gas, and pipeline

WHY ELEMENT BROKEN ARROW

Element Broken Arrow supports customers facing complex qualification requirements, failure investigations, and high-consequence decisions. **Our integrated testing capabilities, deep failure analysis expertise, and connection to Element's global laboratory network allow customers to reduce uncertainty, shorten timelines, and move forward with confidence.**

COATINGS TESTING

- Coating characterization and thickness measurement
- Environmental exposure testing including UV, humidity, and salt fog

NON-METALLICS & POLYMERS TESTING

- Mechanical and physical property testing
- Material identification and reverse engineering
- FTIR, XRD, DSC, abrasion, and ash content analysis

WELDING & WELD INSPECTION

- Welder and welding operator qualification
- Weld and weldment testing
- Certified Welding Inspector (CWI) services and defect evaluation

- Transportation, construction, and industrial manufacturing

