



## MATERIALS TESTING

Element Anaheim is an analysis laboratory with expertise in commercial, aerospace, military aerospace and automotive markets worldwide.

We specialize in electronics and materials conformance, qualification and reliability testing to all levels of the supply chain with an unparalleled reputation for the highest level of customer service and reliable independent test results. The laboratory is a recognized IPC training center.

### PRINTED CIRCUIT BOARD (PCB) TESTING

Printed circuit boards are the foundation for any printed circuit assembly. Our highly qualified staff of mechanical and chemical engineers can perform physical, mechanical, electrical, visual/ dimensional testing and verification at the bare board level on raw materials and assembled PCBAs. This includes evaluation to both military and commercial standards, including IPC certifications and test methods MIL-STD-810, MIL-PRF-55110, MIL-PRF-31032, MIL-PRF-50884, ASTM and IEC.

### OVER 35 YEARS' EXPERIENCE IN FAILURE ANALYSIS

Our failure analysis program can provide detailed information about the performance of materials and devices for end-use applications, as well as root-cause analyses. This allows you to identify design, select, test and process deficiencies and take corrective action to enhance product reliability and performance. Our unbiased analysis converts your failure into success, helping you roll out higher quality products.

### ROOT CAUSE ANALYSIS

Since failure is rarely due to one single mistake, our multidisciplinary approach includes everything from chemical and environmental analyses to simulation tests and visual inspections. Plus, with our vast testing experience, we run only the necessary tests to efficiently get to the root cause of the failure you want to correct.

### ELECTRONIC AND ELECTRICAL TESTING

A core capability, we partner with the electronics and printed circuit board (PCB) industries. Our engineers routinely provide test program insight and development; allowing you the flexibility to enhance and/or structure programs to your specifications.

### UL AND PRODUCT SAFETY TESTING

Element Anaheim can assist with UL Testing requirements for Printed Boards, Laminates and Coatings by helping to determine what materials and testing might be required before opening a full test program with UL. Testing the material and product before opening a full program could help understand material performance before submitting for final certification.

### MICRO-SECTIONAL ANALYSIS

We offer one of the most proven methods to accurately test for the through-hole integrity of printed circuit boards. Since PCBs are constructed of various materials and layers including glass, fibers, metals, adhesives and epoxies, it is critical to product safety to determine the reliability of PCB microsections. In addition, we offer micro-sectional analysis training, so your staff can perform this testing in-house if you prefer.

## DELIVERING INNOVATIVE PRODUCT TESTING AND CERTIFICATION SOLUTIONS

### RESEARCH AND DEVELOPMENT

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Our Research and Development team has more than 25 years of experience providing R&D test services, analysis and consulting on electronics and materials. Our laboratories are equipped with the most advanced instrumentation to customize a program to best meet your development requirements. A partial list of our R&D capabilities includes:

- Accelerated aging
- Differential Scanning Calorimetry (DSC)
- Failure Analysis (F/A)
- Thermal Conductivity
- Thermal Mechanical Analysis (TMA)
- X-Ray Fluorescence (XRF)

### TEST SPECIFICATIONS AND METHODS INCLUDE:

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- Accelerated aging
- Adhesion
- Arc resistance
- Ball shear/die sheet
- Ball pressure test
- Bond strength
- Break strength
- Comparative Tracking Index (CTI)
- Compressive strength
- Conductivity
- Conductive anodic filament (CAF)
- Conformance and reliability
- Corrosion
- DC resistance insulating materials
- Dielectric breakdown/strength
- Decapsulation
- Deflection temperature
- Design of experiments (DOE)
- Density determination
- Dielectric breakdown voltage and strength
- Differential scanning calorimetry (DSC)
- Durability
- Electromigration resistance
- Elongation
- Environmental stress screening (ESS)
- Flammability
- Flexibility endurance
- Flexural bend/fatigue/strength
- Fracture evaluation
- Fracture toughness
- Hi-Pot
- High temperature storage
- High-voltage, low current dry arc
- Hot impact test
- Humidity
- Immersion
- Microsectional analysis
- Surface insulation resistance (SIR)
- Volume/surface resistivity
- Lap shear
- Material characterization
- Mechanical properties
- Peel/shear/tensile/terminal strength
- Rework simulation
- Rockwell hardness
- Solderability
- Steam aging
- Temperature aging/cycling
- Tensile impact
- Tension and compression
- Thermal shock/cycling
- Thermal stress
- Thermo gravimetric analysis (TGA)
- UL short-term properties
- UL long-term thermal aging (LTTA)
- Water absorption
- Dielectric withstanding voltage (DWV)
- Wire ignition
- X-Ray fluorescence (XRF)
- Young's Modulus