TechnoLab
QUALIFYING AND TESTING SOLUTIONS

X-Ray Analysis

Failure Analysis

Testing performance. Measuring durability. Analyzing reliability.

As a manufacturer, you know that your products must be reliable and consistently meet the highest quality standards. Whether you produce electronic or mechanical components, automotive, railway, or aircraft parts—such as cables, connectors, current collectors, gearboxes, chassis components, or valves—ensuring durability and performance is essential.
Environmental factors such as weathering and aging can also affect products like solar panels or ship turbines. Protecting these systems requires reliable and professional testing.
TechnoLab is your trusted partner for comprehensive product testing.
We evaluate the suitability, durability, and service life of your products before they are released to the market.

Our testing services support industries including automotive, railway, aviation, defense, and renewable energy. In addition, we analyze electronic components to support manufacturing optimization and investigate failures—even at the smallest component level.
Our experienced engineers perform testing in accordance with all relevant international standards, ensuring accurate results you can rely on.

- VDI 3822
- VDE 0471-1-10
- DIN EN 60695-1-10
- DIN EN IEC 60695-4
- IPC-A-600/610
- VDE 0471-4
- NFPA 921

1. Technical Failure Analysis concerning electrotechnical und electronic objects
2. Root Cause Analysis (RCA) concerning electrotechnical und electronic objects
3. Failure Investigation concerning electrotechnical und electronic objects
4. Forensic Engineering / Forensic Failure Analysis concerning electrotechnical und electronic objects
5. Forensic Failure Analysis concerning electrotechnical und electronic objects with thermal incident
6. Forensic Failure Analysis concerning degradation mechanisms of electrotechnical und electronic objects

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Failure analysis of electronic assemblies

With our testing capabilities, we are able to make quick and competent statements when production is at a standstill or when it needs to be clarified whether parts can be used in production. We carry out reliability tests or examine the service life of your products.

Our testing methods include

- Visual inspections with various microscopes
- Electrical tests (insulation, high voltage, high current)
- X-ray inspection with optional 3D reconstruction
- Metallography
- Material analyses with EDS on a scanning electron microscope
- Examination of organic compounds using FTIR spectrometry

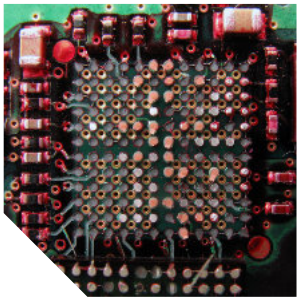
Examples

visual inspections

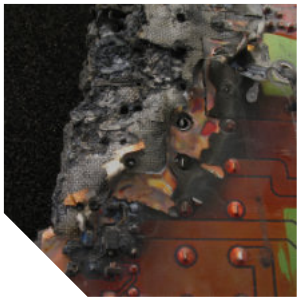
SEM with EDS material analysis

Fourier Transform Infrared Spectroscopy

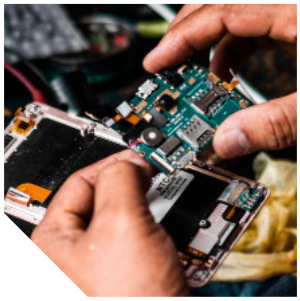
consulting and training



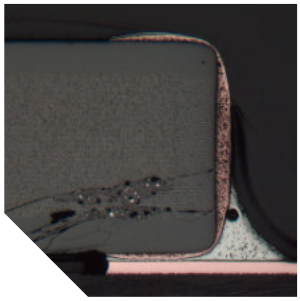
dye and pry test



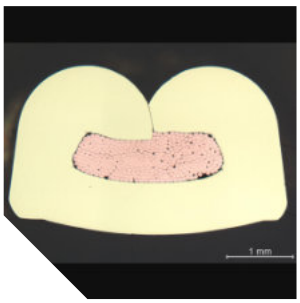
burnt-out circuit board



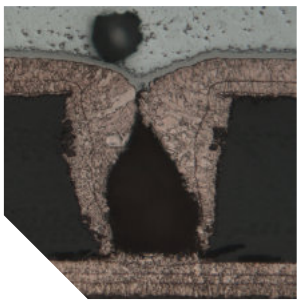
solderabiliy test



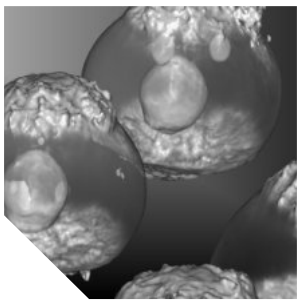
cross-section of ceramic capacitor



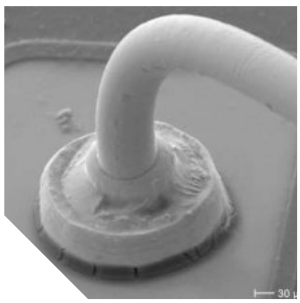
cross-section of crimp



cross-section of micro via



3D X-ray



SEM-analysis of wire bond