

Application Report
ATLAS and RoHS



The Restriction of Hazardous Substances (RoHS) is a compliance directive that holds companies directly responsible for ensuring their electrical and electronic equipment (EEE) conform to strict standards. This directive requires that products cannot contain lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), and four different phthalates above specifically set amounts. These restricted materials are hazardous to the environment and pollute landfills, and are dangerous in terms of occupational exposure during manufacturing and recycling.

The European Union was the first to adopt such directives, but since its inception, California, China, Korea, Turkey, Taiwan and India, have joined the push for compliance and responsibility by creating similar requirements. RoHS has quickly become an imperative for companies wanting to participate in the global market.

X-ray Fluorescence is the preferred method for non-destructively testing materials for RoHS compliance. Micro X-ray Fluorescence (μ -XRF) analysis is an accurate, rapid, test method for elemental analysis. The IXRF Systems ATLAS μ -XRF unit is equipped with micron-level spatial resolution capability for spot analysis as well as elemental mapping.

RoHS specifies maximum levels for the following six restricted materials:

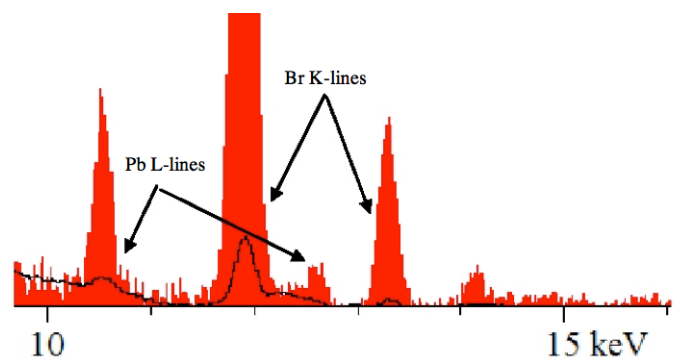
- Lead (Pb): <1000 ppm
- Mercury (Hg): <100 ppm
- Cadmium (Cd): <100 ppm
- Hexavalent Chromium (Cr VI): <1000 ppm
- Polybrominated Biphenyls (PBB): <1000 ppm
- Polybrominated Diphenyl Ethers (PBDE): <1000ppm



CERTIFICATE OF ANALYSIS VALUES

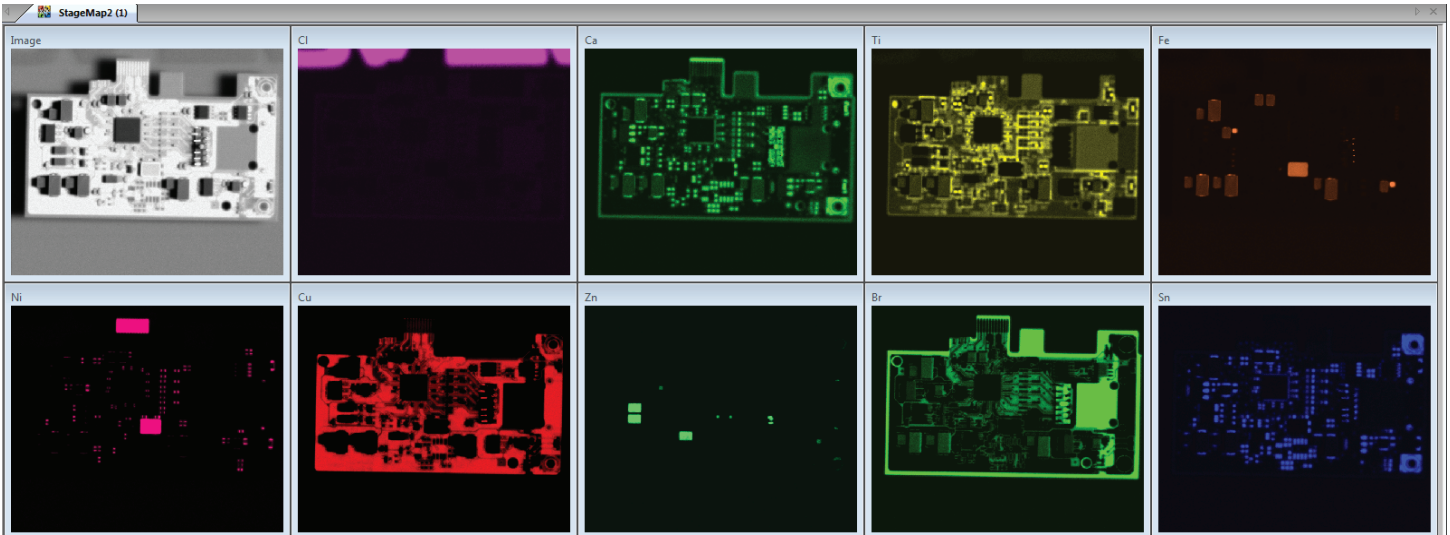
Certified values given in ppm

Element	ERM-EC680 Red Spectrum	ERM-EC681 Black Spectrum
Pb	107.6	13.8
Br	808	98



ATLAS can easily detect restricted materials well below the required maximum levels, providing added assurance of compliance.

ATLAS provides fast screening and detection of trace elements, with the flexibility to work across a wide range of sample types and shapes, due to the large chamber. No or minimal sample preparation is needed.



With ATLAS Stage Mapping, large samples can be quickly mapped for identification of problem materials. It is not necessary to know what elements are present before collecting a map. Elements can be added as the spectrum grows and peaks become evident.

Included below the elemental maps, is the sum spectrum, allowing for quick identification of any problem material's presence.

ATLAS features a "go to" function, that allows a small area of interest to be selected and automatically move the stage back to that area for further investigation.

In ATLAS Stage Maps, a true spectrum is collected at every pixel, allowing for true data processing and understanding of any area within a large map. Even after the sample is gone from the lab, the data remains, allowing for further investigation.

Materials tested include a wide range of components: circuit boards, polymers, medical devices, coated surfaces, and many more. The ATLAS has the ability to rapidly map the sample surface for elemental distribution. Micro XRF is designed to meet regulatory testing requirements for RoHS II and other programs.

X-ray Map Element Overlay

Map Overlay: Cu, Br, Ti, Ca, Fe, Sn, Ni, Zn

