



X-ray diffractometer

Bruker D8 Advance

X-ray diffraction system used to analyse and characterise a wide range of crystalline and semi-crystalline organic, inorganic and metallic materials.

Features and benefits

- X-ray reflectometry including compact XYZ stage and Leptos software for interpretation of protective coatings, thin-film semiconductors, photovoltaics and electronics packages
- Variable temperature and humidity stage for monitoring corrosion, hydration, phase development and degradation
- Small-angle X-ray diffraction package to measure basic structural information from nano- to submicron-length scale, including the crystallinity in polymers or organic materials in solution, and ordering in self-assembled systems and structural thin films

Some applications

- Rapid analysis and characterisation of unknown materials across a range of fields including metallurgy, materials chemistry, and forensic, corrosion, biological and pharmaceutical sciences
- Identification of phase compositions, formed as a function of time in a range of static or changing environments, crucial in the understanding of degradation processes
- In corrosion science, such information can help to locate the origin of corrosion and inform solutions
- In metallurgy, can be employed to investigate phase transitions and conduct routine quantitative testing in accordance with established standards

Technical specification

- Vertical goniometer and Theta/Theta geometry configurations
- Measuring circle diameter: 560mm
- Maximum usable angular range: $-110^\circ < 2\theta \leq 168^\circ$
- Smallest addressable increment: 0.0001°
- Accuracy: 0.005°
- Resolution: $0.028^\circ 2\theta$ at $\sim 30^\circ 2\theta$ in Bragg-Brentano geometry

