

X-Ray Analysis on Thin Films

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Abstract

The utilization of materials at high temperatures challenge their mechanical properties and chemical stability. The combination of these material surfaces with thin coatings promises an additional route to keep the mechanical properties of the bulk composite material but improving their oxidation and corrosion resistance will be discussed. Most critical in such applications is the design of interfaces. We discuss the possibilities of supporting such developments by means of X-Ray techniques. Coatings produced from pure metallic vapour and/or in reactive oxygen atmosphere were investigated by X-ray diffraction (XRD) methods. All these coatings have been annealed in ambient air up to 1200 °C and were investigated by *in-situ* XRD analysis in order to follow in detail their oxidation process.