

**MEASURING RESIDUAL STRESSES IN STAINLESS STEEL USING XRD -
RECENT EXPERIENCES WITHIN A VAMAS INTER-COMPARISON
EXERCISE**

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Abstract

Residual stresses impact on a wide variety of industrial sectors including the automotive, power generation, industrial plant, construction, aerospace, railway and transport industries, and a range of materials manufacturers and processing companies. The X-ray diffraction (XRD) technique is one of the most popular methods for measuring residual stress, used routinely in quality control, materials characterisation for validating models and design.

The VAMAS TWA20 Project 3 activity on the “Measurement of Residual Stresses by X-ray Diffraction” examined various aspects of the XRD test procedure in support of developing an international standard in this area. The purpose of this project was to examine and reduce some of the sources of scatter and uncertainty in the measurement of residual stress by X-ray diffraction on metallic materials, via an international round robin exercise. One of the major issues the round robin highlighted was the problems associated with measuring residual stresses in austenitic stainless steel. The following paper reviews the results of the exercise and details additional work looking the developing best practice for measuring residual stresses in austenitic stainless steel.

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The abstract is being submitted for the ICRS conference.

Permission is granted to post the abstract on the DXC and affiliated web sites.

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