

Product Evaluation

Information on what happens to a product if a process, or starting material changes can be vital. Batch samples at various stages of processing can be examined. Alternatively, measurements can be made *in-situ* with special furnaces, e.g. for testing the response of materials to high temperatures and/or oxidizing gases, without the need for quenching.

Quality Assurance (QA)

For well established processes, the technique can be used to check compliance with a quality standard. Quantitative phase analysis using neutron diffraction is a leading QA method for ensuring the correct proportion of fissile phases in nuclear fuels in Canada.

Ceramics

Metal-matrix composite

Welds

Alloys

Nuclear fuels

Oxidation phases

Minority phases

Retained austenite

Bulk compositions

Compositional profiling

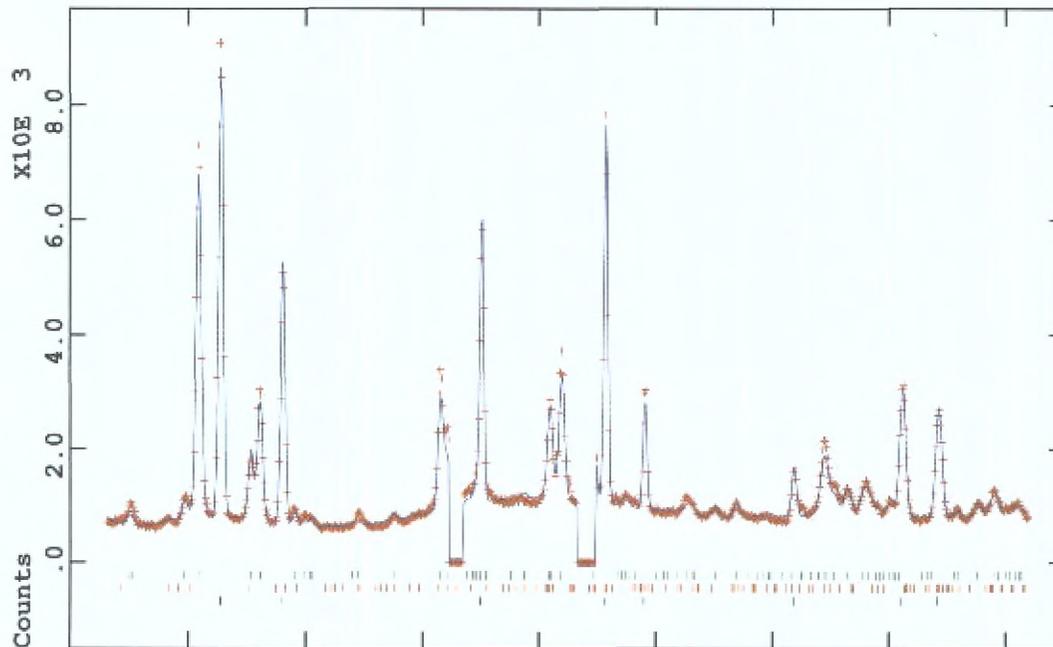


Fig 2. The composite diffraction pattern from a three-phase metal-matrix composite, showing the observed (+), and fitted (line) diffraction pattern. The tick marks, define contributions from each phase.

For more information or to arrange measurements contact Dr. John Root:

National Research Council Canada
Steacie Institute for Molecular Sciences
Neutron Program for Materials Research
Chalk River Laboratories
Chalk River, Ontario
Canada, K0J 1J0

Phone: 613-584-8811, Ext. 3974
1-888-243-ANDI
FAX: 613-584-4040
E-mail: NPMR@nrc.ca
WWW: <http://neutron.nrc.ca>