

**AECL RESEARCH**

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**Service #1: Neutron Diffraction: Residual Stress and Texture Measurements** - Neutron diffraction is a well-established technique for measuring internal residual strains and texture in engineering components. Its unique strength is that residual stress gradients through components can be obtained easily, non-destructively, and with no sample preparation. The method consists of the deep penetration of thermal neutrons into a material, and the accurate measurement of diffraction angles.

**Keywords:** neutron diffraction; residual stress; texture.

**Recent Successes:** In the past six years, AECL Research has provided a neutron diffraction R & D contract service for clients in Canada, the U.S.A. and Europe including NASA, Sandia and Lawrence Livermore National Laboratories, Thiokol, Pratt & Whitney, British Petroleum Research Institute.

**Service #2: Electron-beam processing of advanced composites** - AECL Research's 1-10/1 accelerator is used to develop and process a wide range of advanced materials and composites for industrial applications. Electron-beam processing is used for curing, cross-linking and grafting polymer materials, and may be used to improve the properties of composites such as radiation-curable carbon-epoxy prepegs and wood-plastic composites.

**Keywords:** composites; electron-beam curing/processing; radiation curing/processing.