



Impact Fretting-Wear Facility

CNL's Impact Fretting-Wear Facility (IFWF) located at its Chalk River Laboratories, is designed to reproduce reactor operating conditions leading to impact fretting wear of nuclear components, such as steam generator tube supports, pressure tube and fuel bearing pads, fuel cladding supports, and control rod supports.

The Impact Fretting-Wear Facility is unique in Canada because of its capability to perform tests at reactor operating conditions, while controlling the temperature, pressure, and chemistry of the experiment. The IFWF has very broad experience in this field and has accumulated an extensive database of fretting-wear results, making the IFWF ideal for testing new materials and/or operating conditions.

The IFWF consists of two fretting-wear test machines. Each machine comprises an excitation tube, support structure, vibration generator, and actuator control unit. Each machine includes high-temperature displacement probes, force transducers, and associated instrumentation, such as a liquid level monitor, pressure gauge and temperature controller. The team of scientists, engineers and technologists who operate the IFWF have many years of experience in the field of flow-induced vibration and fretting wear, making them ideally suited to support partnerships with the IFWF.

The IFWF staff work closely with complementary CNL facilities such as the Surface Science Laboratories, the Reactor Chemistry Branch, and the Component Life Management and Thermalhydraulics Branches. The IFWF has worked collaboratively with international research facilities and electric utilities. The Impact Fretting-Wear Facility welcomes new partnerships with universities, external partners and industry.

