



Fission Products Behaviour Laboratory

CNL's Fission Products Behaviour Laboratory (FPBL) is located at its Chalk River Laboratories. The main areas of expertise within the FPBL are fission-product release from fuel under postulated accident conditions including fuel oxidation in air or steam environments, fuel sheath strain and failure testing, and fuel bundle deformation. The experiments conducted in the laboratory provide data for understanding fuel behaviour under accident conditions, and for the development and validation of computer codes.

The FPBL is one of four groups around the world that are capable of studying fission-product release from irradiated oxide fuel samples of significant burn up, under reactor accident conditions. The laboratory's capabilities include high-temperature furnaces (1,700°C in oxidizing conditions and 2,500°C in inert or reducing conditions), gamma spectrometers and nearby hot cells. The FPBL also specializes in characterizing the deformation of individual fuel elements such as, sheath ballooning and element sagging, as well as gross bundle deformation at high temperatures under various atmospheric conditions.

Fission Products Behaviour Laboratory technical staff have a wide variety of experience designing, constructing and commissioning laboratory equipment for studying the high-temperature behaviour of irradiated and non-irradiated fuel.

The Fission Products Behaviour Laboratory is interested in extending the range of its collaborations to include modelling work on bundle deformation, gamma spectrometric measurements of irradiated fuel, and thermodynamic data collection and modelling.

