



CAN-DECON Test Loops #2 and #3

CNL's CAN-DECON™ Test Loops #2 and #3 (CDTL #2 and CDTL #3) are located at its Chalk River Laboratories. These two test loops aid in the development and qualification of CNL's decontamination processes.

CDTL #2 is a high velocity recirculating loop constructed from stainless steel. This loop has a total volume of 6 litres and is equipped with two 80 mL glass ion exchange resin columns in the purification section, for the on line regeneration of the reagent. Tests can be carried out at a linear velocity of 1 to 10 m/s with a corresponding flow rate of 25 to 250 L/min and at temperatures up to 120°C and pressures up to 660 kPa. The purification flow rate can be varied depending on the test being performed; a purification flow rate of 100 mL/min corresponds to a purification half-life of 42 minutes. The loop has a test section, which can contain corrosion coupons and/or reactor artefact specimens to study corrosion of materials along with the effectiveness of a particular process.

CDTL #3 is a high velocity recirculating loop constructed from titanium. This loop has a total volume of 4.9 litres and is equipped with 200 mL and 300 mL glass ion exchange resin columns in the purification section for the on line regeneration of the reagent. Tests can be carried out at a linear velocity of 1 to 4 m/s, corresponding to flow rates of 10 to 100 L/min and at temperatures up to 135°C and pressures up to 275 kPa. The loop has two test sections, which can hold corrosion coupons and reactor artefact specimens to study corrosion of materials and process effectiveness. The purification flow rate can be varied depending on the test being performed; a purification flow rate of 100 mL/min corresponds to a purification half-life of 34 minutes.

Between 1999 and 2008, the NRU U-1 and U-2 loops were decontaminated using CNL processes that were developed and qualified using CDTL #2 and CDTL #3. The NRU U-1 and U-2 loops at CRL are light water cooled in-core facilities used to study fuel and material behaviour under irradiation.

CNL has worked collaboratively with industry for many years utilizing the CAN-DECON Test Loops #2 and #3. Most recently CDTL #2 and #3 were used to qualify two of CNL's decontamination processes for application at the Gentilly 2 heat transport system.

