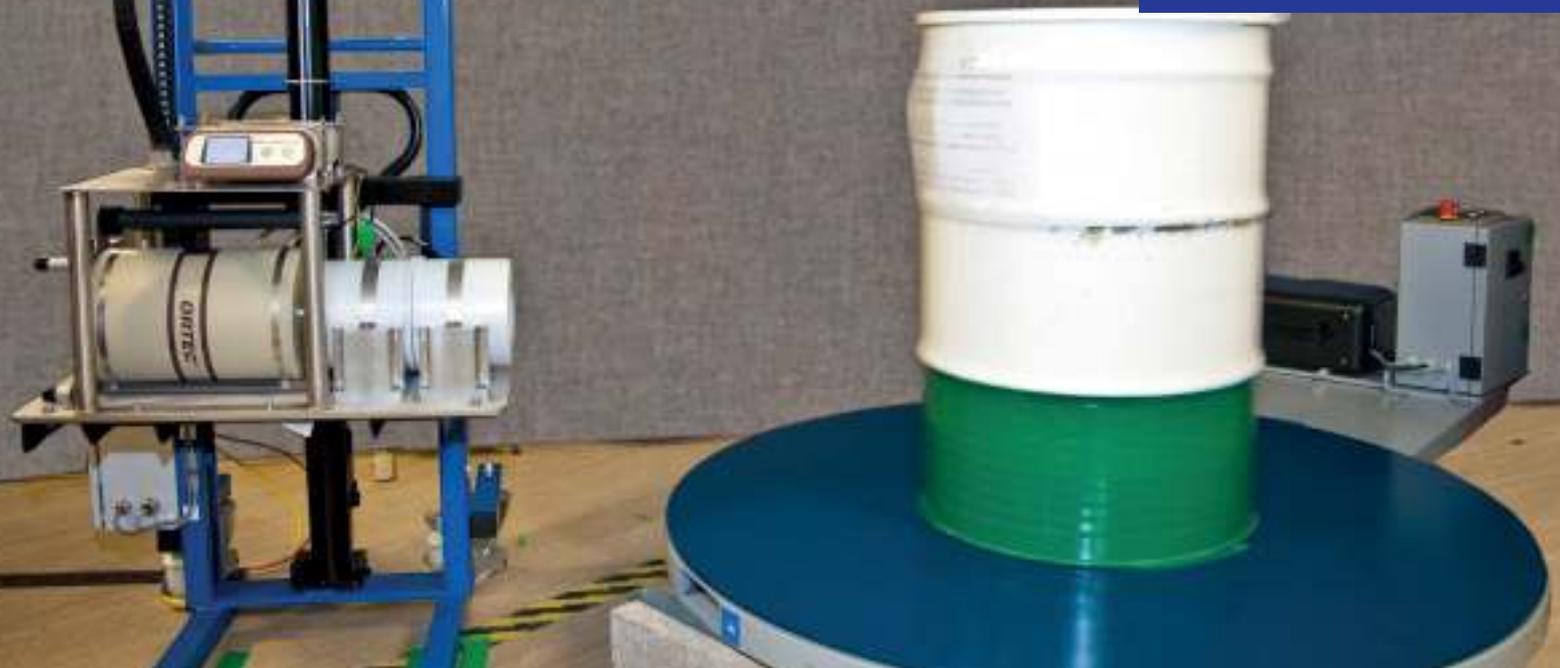




cavendish  
nuclear

Cavendish Nuclear's  
DrumScan® HRGS Solo  
system



## DrumScan® HRGS Solo

**Cavendish Nuclear's DrumScan® HRGS Solo provides a single shot, high resolution gamma spectrometry assay for waste drums and boxes, delivering a reliable, fast, accurate and high sensitivity measurement.**

The Cavendish Nuclear DrumScan® HRGS Solo system accurately assays a wide range of wastes including paper, plastics, clothing, soils, incinerator ash, sludges and others in drums or boxes weighing up to 1000kg.

The operating range for drum activities spans all wastes from exempt waste, VLLW, LLW, and ILW. Contaminated wastes containing up to 6.0GBq <sup>60</sup>Co activity in a 200 litre drum of scrap metal can be readily measured.

### Ensuring Accuracy and Speed

Matrix correction methodologies include the mean waste density method and the differential peak absorption (DPA) method to give a simple and reliable correction for both low and high density (0.1 to 2.5 g.cm<sup>-3</sup>) waste in drums and boxes.

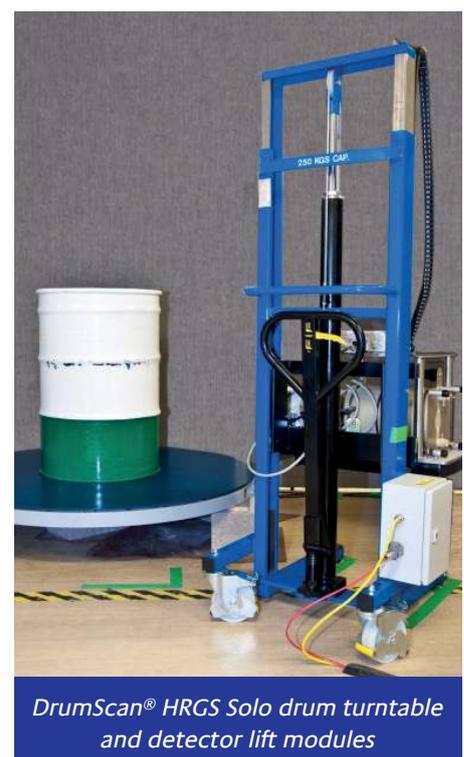
The DrumScan® HRGS Solo auto

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calibration software allows new waste scenarios (matrices and containers) to be measured using operator defined calibrations. Over 50 separate radionuclide fingerprints (or scaling factors) can be stored to enable the operator to select the appropriate data to meet the needs of nuclear facilities having many different waste streams. Each of these unique fingerprints can contain up to 200 different isotopes.

Any difficult to measure radionuclides are predicted from the measured radionuclide data using the scaling factors stored in the fingerprint data.

The isotopic composition of waste materials can be automatically decay corrected to permit the reassessment of previously measured waste where a significant period of time has elapsed since the measurement took place.



DrumScan® HRGS Solo drum turntable  
and detector lift modules

CN-RS-PRD013

### Flexible System Configuration

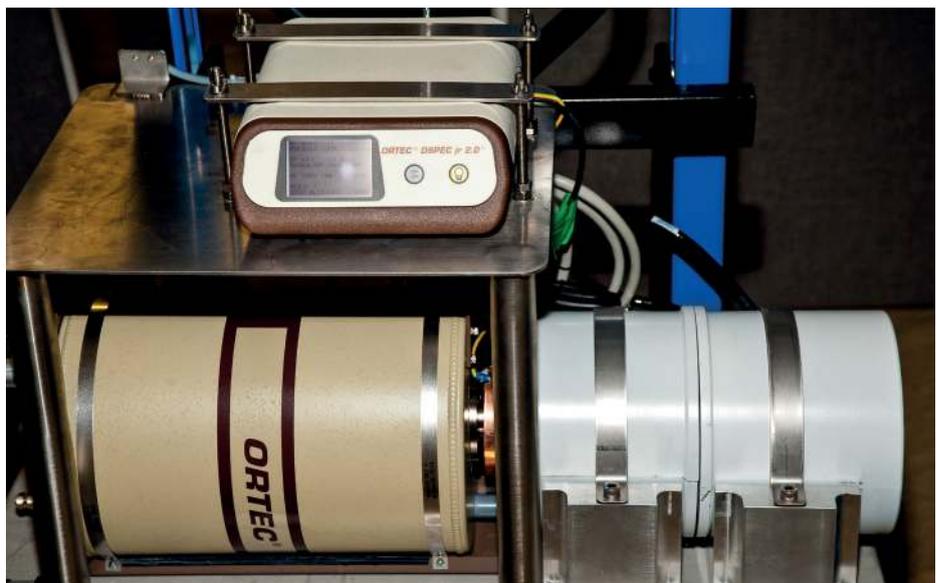
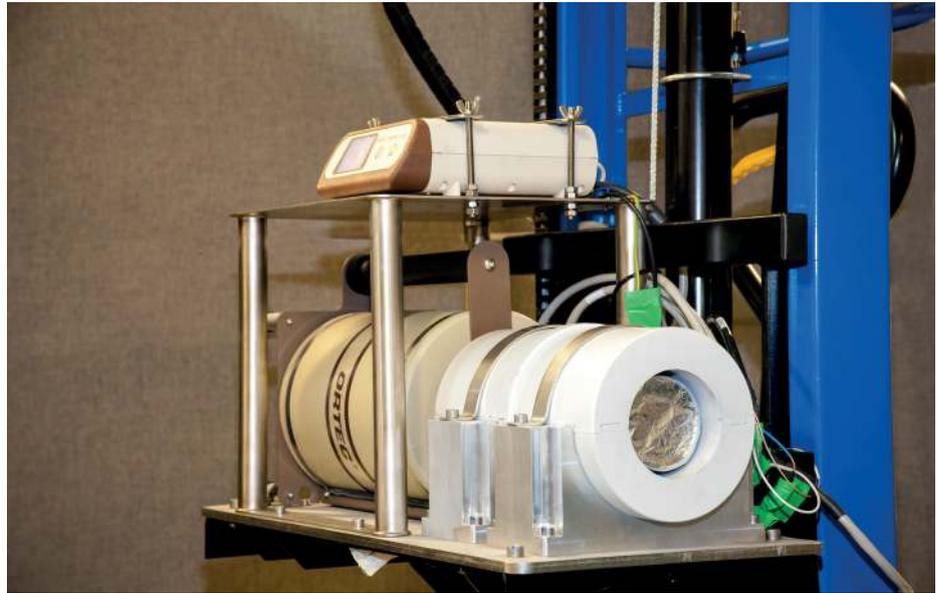
In the standard configuration a 15% efficiency coaxial HPGe detector is used with liquid nitrogen cooling from a 35 litre dewar. Electrically cooled HPGe detectors are available as an option to meet the needs of both well supported facilities and more remote locations where liquid nitrogen may not be readily available.

The standard turntable provides rotation of the waste drum/box at a rotation rate of 10rpm. The turntable can be fitted with a weigh cell to provide waste item weight information for matrix correction calculations. Optionally, the standard turntable can be replaced by a roller conveyor turntable, providing flexibility for both automated drum handling and in-cell applications.

Optional drum dose-rate measurements at selected positions close to the waste containers are available during the waste assay (dose rate range  $10^{-7}$  to  $10^{-2}$  Sv.hr<sup>-1</sup>).

The DrumScan® HRGS Solo system can provide automatic waste consignment optimisation and documentation production for multiple drum shipments.

An optional bar-code reader is available to enable automatic input of the unique details of each measurement drum, removing the potential for operator and transcription errors.



Top and above: DrumScan® HRGS Solo drum detector lift module showing liquid nitrogen cooled HPGe detector, collimator and signal processing electronics

### Performance and Capabilities

- Waste containers: 100 litre to 500 litre drums and 1m<sup>3</sup> boxes
- Waste weight: 10kg - 1000kg
- Count Time: Typically 5 minutes (up to 60 minutes)
- Detector: 15% coaxial HPGe (1.9keV at 1332keV FWHM)  
Liquid nitrogen cooled as standard (35 l dewar)  
Optional electrically cooled detector
- Maximum Activity: >6GBq <sup>60</sup>Co in 500kg waste in 200 litre drum
- Minimum Activity: <0.4Bq/g <sup>60</sup>Co or <sup>137</sup>Cs in 250kg waste/200l drum
- Operating Range: 0°C to 40°C, 5% to 80% RH (non condensing)

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