

Previous model number: 2024-200

Drum Decommissioning Piece Monitor

N2024-220

Introduction

The N2024-220 Decommissioning Piece Monitor is a transportable efficient neutron assay instrument for the monitoring of intermediate level Plutonium Contaminated Material (PCM) waste arising from decommissioning operations. Waste is loaded into a 200 litre drum fitted with a containment barrier. The monitor surrounds the drum and measures its PCM content.

The monitor is modular in construction and utilises standard proven ANTECH hardware and software. It consists of four neutron detector panels, each of which is fitted with six neutron detectors and a single amplifier is mounted on a trolley. The front panel of the monitor also functions as a door to enable drums to be loaded and removed. The four amplifier TTL outputs are input into an N2000 Universal Neutron Counter that functions as a neutron counter, analyser and source of high voltage and low voltage DC supply. The N2000 is operated under computer control (from a host computer) and can be remote from the monitor. The system can be operated with other neutron counting electronics.

Features

- Large measurement chamber that will accept size-reduced pieces within a 200 litre drum
- Measurement chamber can be constructed to accommodate any drum size up to and including 400 litres
- Front detector panel also serves as a door to enable loading and unloading of 200 litre waste and calibration drum
- Counting electronics, personal computer and printer are included
- One junction box/amplifier unit per panel provides a high voltage connection to the detector tubes and low voltage and signal connection to the amplifier



Benefits

- The chamber is housed on a transportable trolley with locking castors for safety and stability
- Non-interchangeable connector types prevent misconnection
- Provides a complete passive neutron assay system when used with the N2000 Universal Neutron Counter Analyser with Passive Neutron Coincidence Counting Software or a Multiplicity Shift Register with INCC-B32 software.

Specification

Dimensions (H x W x D) (including mixer unit)		1110 mm x 970 mm x 970 mm (43.7 in x 38.19 in x 38.19 in)
Detector tubes		24 x ³ He detector tubes
Detector dimensions (L x diameter)		25.4 mm diameter x 750 mm length at 4 atm pressure (1 in x 29.53 in)
Bare chamber detection efficiency		~10 %
Operating voltage		~1800 volts
Weight (approx.)		370 kg (815.71 lb)
Die-away time		~100 μs
Electrical connections	High voltage	SHV
	Supply for head amplifiers	TNC
	Signal output	BNC
Lower limit of detection		Indicative lower limit of detection of between 60 - 100 mg ²⁴⁰ Pu _{effective} in coincidence counting mode equivalent to between ~ 1 – 2 g total WG Pu in a 10 minute measurement time (for a coincidence background of no greater than 0.05 /s)
Compliance	Safety	Conforms to European Union Directive 72/23/EEC (EN61010-1: 2001)
	EMC	Conforms to European Union Directive 2004/108/EC BS EN 610000-6-4:2001 Emissions BS EN 6101-6-2:2001 Immunity