

Clearance Counter

for activity measurement and controlled disposal of radioactive waste



Use and function

The Clearance Counter FMS is meant to check waste bags or boxes and contaminated clothing or utensils in nuclear medicine and industry.

Because mainly short life isotopes are used in nuclear medicine, most waste can be considered inactive after a certain storage time. The Clearance Counter FMS makes it possible to check if the activity value of the waste is below the levels for restricted disposal, which have been established by the authorities, and to store and record the measurement results. The monitor features an accounting software with calculation of activity decay and suggested date for repetition of measurement for final disposal. The cleared waste can be disposed as regular waste which means a considerable cost reduction.

SEA

PRODUCT INFORMATION

Performance features

- measurement/calculation of specific activity (Bq/g) taking into account nuclide- and container-specific calibration factors
- reproducible activity measurement in 4 π -geometry
- compact stainless steel housing with 2 doors for simple loading, movable
- various versions of high-sensitive NaI-scintillation detectors for γ -activity measurements available (see below)
- as an alternative also with large-area, thin-layer plastic scintillation detectors (PVT) for β -activity measurements
- optionally available with additional NaI-detectors for nuclide-specific measurement of key nuclides
- PC-based measuring system, industry-PC-system integrated in housing, measuring value display on flat LCD screen
- measuring task-based software with data management system, easy to operate
- calibration factors based on key nuclides and container types
- recording of input and output measurement according to requirements of license and/or radiation protection ordinance
- automatic consideration of waste weight via integrated balance with serial interface. Calculation of specific activity in Bq/g
- calculation of moment of re-submission based on nuclide (half-life) and specific activity
- output measurement after a definable number of half-lives or after calculated moment of falling below the release limit value
- extensive database management program with data storage and stock book keeping, incl. data selection (variable filter functions)
- printout of protocol for removal from stock, for documentation and presenting to the authorities for admission to dispose

Versions

Types:	FR 4 - system:	4 detectors (1 detector per side)
	FR 6 - system:	6 detectors (like FR 4, incl. 1 bottom and 1 top detector)
	FR 8 - system:	8 detectors (2 detectors per side)
	FR 10 - system:	10 detectors (like FR 8, incl. 1 bottom and 1 top detector)

Detectors: NaI-scintillation detectors 70 x 70 x 13 mm³ for γ -activity measurements
As an alternative for β -measurements:
thin-layer, large-area plastic-scintillation detectors (PVT),
each 150 x 300 mm²
(in case of plastic-scintillation detectors other
inner dimensions of measuring chamber and
external balance)



Technical data:

Mechanics:	FR 4/6 - measuring chamber, 50 x 50 x 59 cm (inner dimensions) FR 8/10 - measuring chamber, 50 x 50 x 89 cm (inner dimensions) 5 mm lead shielding, integrated in all sides total weight approx. 130 kg (FR 4/6), approx. 190 kg (FR 8/10)
Electronics:	integrated PC-system (PC-104 type), Pentium-basis operation via mouse pad and keyboard
LCD screen:	integrated 12.1" LCD screen, color as an alternative external monitor
Balance:	load cells integrated in bottom platform with serial interface RS 232, integration in FMS software, automatic data transfer taking into account tare of container type
Software:	Windows operating system easy to use application software details see software description
Printer:	label printer e.g. SEIKO SLP 440 for container labeling label size e.g. 54 x 101 mm ink jet printer for protocols account tare of container type