

ÀÒ1315

Two-crystal scintillation spectrometer with protection on anticoincidence to measure simultaneously and selectively specific ^{137}Cs , ^{90}Sr and ^{40}K radioactivity in environmental targets, evaluate specific effective activity of natural radionuclides in buildings materials and perform metal radiation monitoring

Features

- Identification of ^{137}Cs , ^{90}Sr , ^{40}K , ^{226}Ra , ^{232}Th and others isotopes
- 1024-channel MCA integrated into smart probes
- Continuous automatic LED stabilization while measuring
- Calibration from a radioisotope reference source
- PC spectra processing by the maximum likelihood method
- Automatic account of sample spectra acquisition in real time on PC display
- Simultaneous spectra acquisition and processing
- Multitask PC operation
- Library of gamma radiation radionuclides

GAMMA BETA RADIATION SPECTROMETER

^{137}Cs from 2 Bq/l ^{90}Sr from 0.2 Bq/l



Application

Spectrometric and radiometric monitoring of gamma and beta radiation radionuclides in water, food, agricultural, industrial and building materials, metal products, timber and environmental targets (soil, vegetation etc.).



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INSTRUMENTS AND TECHNOLOGIES FOR
NUCLEAR MEASUREMENTS AND RADIATION MONITORING

Specification

Detectors

scintillation NaI(Tl) Ø63663 mm
 plastic scintillator Ø12869 mm

Energy range

gamma radiation 50 - 3000 keV
 beta radiation 150 - 3500 keV

Integral non-linearity <1 %

Relative energy resolution

for gamma line of 662 keV < 9.5 %

Maximum input statistical load 10^4 s^{-1}

Continuous operation time not less than 24 h

Calibration instability

for continuous operation < 2 %

Instrument data instability

for continuous operation < 5 %

Operation mode setup time < 30 min

Number of channels

gamma spectra 1024
 beta spectra 1024

Volume (specific) activity measuring range

for natural samples

^{137}Cs 2 - 10^6 Bq/l (Bq/kg)
 ^{40}K 20 - $2 \cdot 10^4$ Bq/l (Bq/kg)
 ^{90}Sr 20 - 10^6 Bq/l (Bq/kg)
 ^{226}Ra 3 - 10^4 Bq/l (Bq/kg)
 ^{232}Th 3 - 10^4 Bq/l (Bq/kg)

Intrinsic measurement error

at $\bar{D}=0.95$ ± 20 %

Lower measuring range limit of ^{90}Sr of concentrated samples (on natural sample basis)

drinking water 0.2 Bq/l
 milk, children's food 1.5 Bq/l
 potatoes, bread, grain,
 agricultural materials 2.0 Bq/kg

Density range of measured samples

..... 0.2 - 1.6 g/cm³

Power requirements - AC mains

voltage 220 V
 frequency 50 Hz

Required power not more than 100 VA

Operating temperature range $+10 \div +35$ °Ñ

Radio disturbance

EN 55022:2006

Electromagnetic compatibility

IEC 61326-1:2005
 EN 61000-4-3:2002

Weight

gamma radiation smart probe 3 kg
 beta radiation smart probe 3 kg
 protection unit 120 kg

Dimensions

gamma radiation smart probe Ø97.56420 mm
 beta radiation smart probe Ø1386358 mm
 protection unit Ø6006730 mm

Measuring vessels for natural samples

Marinely 1 l
 flat 0.5 and 0.1 l

Measuring vessels for concentrated samples

flat 0.2 and 0.03 l

Complete set: spectrometric gamma and beta radiation smart probes, protection unit, PC, applied software, reference ^{137}Cs gamma radiation source, 9 kBq, sample compactor, measuring vessels, Manual, User's guide and measuring techniques.

The gamma beta radiation spectrometer AT1315 has pattern approval certificates of Republic of Belarus, Russian Federation and Kazakhstan.

It complies with IEC 61563 and IEC 61562 International standard requirements. It also conform with the 89/336/EEC directive complying with EN 61326 standard requirements and 73/23/EEC directive complying with EN61010-1, EN 50371 standard requirements.

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