

AT1315

GAMMA BETA RADIATION SPECTROMETER

Two-crystal scintillation spectrometer with protection on anticoincidence for simultaneous and selective gamma and beta activity sample measuring without its radiochemical preparation

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

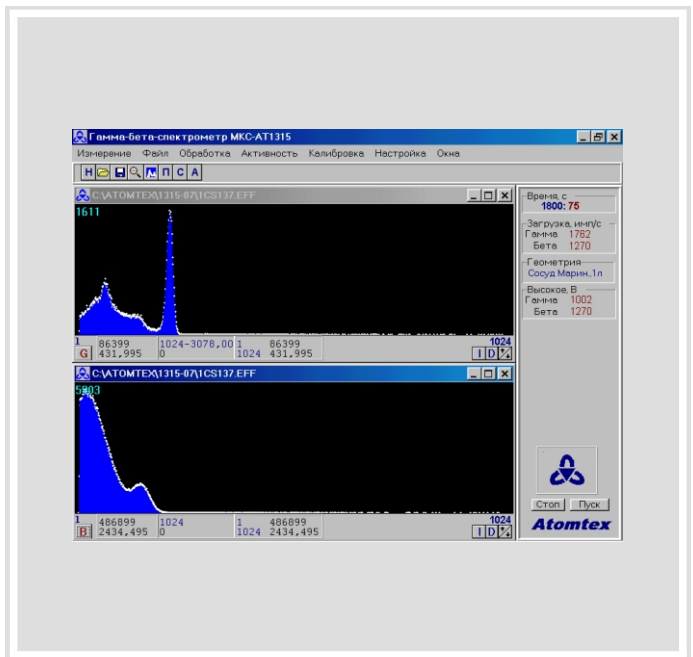
Features

- Detection of ^{137}Cs , ^{90}Sr , ^{40}K , ^{226}Ra , ^{232}Th and others isotopes
- Spectrometric module built into PC
- 1024-channel MCA
- Continuous automatic LED stabilization within measuring
- Calibration from control radioisotope reference source
- Applied software running under Windows 9x
- PC spectra processing by maximum-likelihood method
- Automatic account of sample density
- Visualization of spectra acquisition in real time
- Simultaneous spectra acquiring and processing
- Simultaneous PC application for other problems within measuring
- Library of gamma radiation radionuclides



Application

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



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INSTRUMENTS AND TECHNOLOGIES FOR
NUCLEAR MEASUREMENTS AND RADIATION MONITORING

Specification

Detectors

scintillation NaI(Tl) 63x63 mm
plastic scintillator 128x10 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 < 8.5 %

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

Continuous operation time not less than 24 h

Calibration characteristic instability

within continuous operation < 2 %

Reading instability within

continuous operation < 5 %

Operation mode setup time <30 min

Channel number

gamma spectra 1024
beta spectra 1024

Volume (specific) activity measuring range
(without sample preparation)

^{137}Cs 2 - $1 \cdot 10^6$ Bq/l (Bq/kg)

^{40}K 20 - $2 \cdot 10^4$ Bq/l (Bq/kg)

^{90}Sr 20 - $3 \cdot 10^6$ Bq/l (Bq/kg)

Intrinsic measurement error

at $P=0.95$ ± 20 %

Lower measuring range limit of ^{90}Sr at sample
concentrating evaluated in natural sample

drinking water 0.2 Bq/l

milk, children's food 1.5 Bq/l

potatoes, bread, grain,
agricultural materials 2.0 Bq/kg

Power requirements - AC mains

voltage 220 V

frequency 50 Hz

Required power not more than 100 VA

Operating temperature range +10 +35 °C

Radio disturbance characteristics

CEI/IEC CISPR 22:1997

Electromagnetic compatibility

CEI/IEC 61000-4-2:1995

IEC 61000-4-4:1995

IEC 61000-4-11:1994

Weight

gamma radiation detection unit 3 kg

beta radiation detection unit 3 kg

protection unit 120 kg

Dimensions

gamma radiation detection unit 97.5x420 mm

beta radiation detection unit 138x358 mm

protection unit 600x730 mm

Measuring vessels for natural samples

Marinelly 1 l

flat 0.5 and 0.1 l

Measuring vessels for concentrated samples

flat 0.2 and 0.03 l

Warranty 18 months

Complete set: spectrometric gamma and beta radiation detection units, protection unit, spectrometric module, applied software, reference ^{137}Cs gamma radiation source of 12kBq, PC. By additional order it is possible to calibrate the spectrometer to measure natural radionuclides in building materials and products and concentration samples.

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

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