SpectraDec
software for liquid scintillation analysis

FEATURES

• Software allows users to provide radionuclide analysis of samples measured on all types of liquid scintillation spectrometers

• rapid processing in the automatic mode of spectra with small statistics, with poor resolution and with a significant overlap in the energy spectra of constituent radionuclides

• the processing is based on mathematical modeling of the measured spectrum by the spectra of individual radionuclides from a pre-prepared library

• the possibility of modeling the missing library spectra from the available spectra

PROTOCOL
of spectrum processing
from 14.03.2017

Instrument: «TRI CARB 2550»

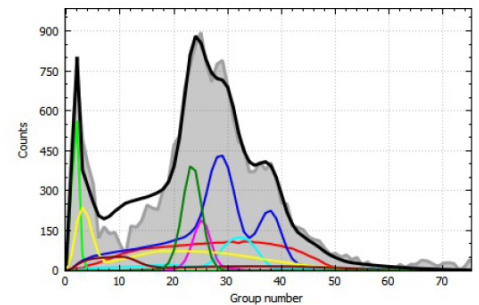Spectr: D:/_vs12/SD/SpD/Spectrs/Sample 7_3 Water screening.001

Measuring date: 14.03.2017 10:05

Measuring time: 36000 sec
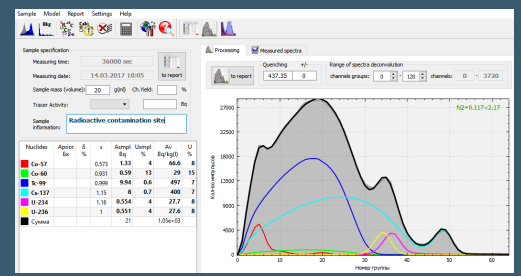
Sample mass (volume): 20g(ml)

Sample information: Sample 7_3 Water screening

	Nuclides	Cont.%	Asmpl,Bq	U,%	Av,Bq/kg(l)	U,%
	K-40	19	0.11	13	5.6	15
	Lum	5.1	0.027	26	1.3	27
	Rn-222eq	33	0.0349	7	1.75	1e+01
	Ra-224Eq	8	0.043	25	2.1	26
	Ra-226	4.4	0.022	34	1.1	35
	Ra-228+Ac-228	16	0.085	18	4.2	19
	Th234+Pa234m_Eq	5.8	0.017	52	0.86	52
	U-238	9.5	0.05	14	2.5	16
	Total	100.7	0.391		19.5	

• availability of the measurement techniques used on liquid scintillation spectrometers

• rapid test (without radiochemical preparation) of the activity of α- and β-emitters

• procedure of the automatic and manual quenching correction, including the application of an external standard

• accounting for activity of radionuclide used as a label

• possibility of self-modeling of the spectrum by the operator, as well as taking into account of a priori activity of radionuclides in the mixture

• formation of preliminary sets of the calculated radionuclides

• the report editor allows you to create the resulting document in accordance with any user requirements and save it in various formats (html, pdf)

• availability of the user and administrator modes

Metrology of ionizing radiation

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APPLICATION

- Monitoring of natural radionuclides (^{226}Ra, ^{228}Ra, ^{228}Th, ^{222}Rn, ^{210}Pb, ^{210}Po , ^{234}U, ^{238}U) and technogenic (^{3}H, ^{14}C, ^{90}Sr , ^{89}Sr , ^{137}Cs, ^{241}Pu, ^{36}Cl, ^{129}I, ^{85}Kr, ^{99}Tc, Pu) radionuclides in environmental objects (air, soil, water, sediments, foliage, etc.) at background levels
- Rapid analysis of various radionuclides in the environment under the control of emissions and discharges of non-nuclear-cycle enterprises (coal, oil and gas fields, power plants)
- Monitoring of technogenic radionuclides in emissions and discharges of enterprises of the nuclear cycle (^{3}H, ^{85}Kr, ^{89}Sr, ^{90}Sr, ^{99}Tc, ^{129}I, ^{241}Pu …), as well as in radioactive waste
- Radiation monitoring of sources of drinking water supply and food products
- Monitoring of the content of various radionuclides in technological environments at nuclear cycle plants – rapid analysis by screening method without radiochemical preparation or with minimal simplified preparation
- Measurements of airborne content, as well as internal contents of various radionuclides of personnel at nuclear cycle facilities
- Determination of gross α-β activity in various objects
- Precise analysis of radon and thoron in indoor air
- Quality inspection of isotope products
- Control of radioisotope tracers in medical and biological research