MUCHA NOVA HR

HIGH RESOLTUION MULTI-CHANNEL ANALYSER FOR γ-SPECTROSCOPY

DESIGNED FOR THE ANALYSIS OF RADIOPHARMACEUTICALS OR LOW ACTIVITY ANALYSIS IN LIQUID SAMPLES

- RADIONUCLIDIC PURITY TEST
- HIGH RESOLUTION SPECTRUM
- NO ACTIVE COOLING NEEDED
- AUTOMATIC ENERGY CALIBRATION

The MUCHA Nova HR is a γ-radiation measurement system, designed for the radio spectroscopy analysis of radio pharmaceutical samples. It has been optimized to give higher resolution spectrums compared du standard Multichannel analyzers with NaI probes.
It is an all-in-one solution with an inbuild shielding and a shielded cover for best radiation protection and measurement performance.

ELYSIA RAYTEST

Beside the use for analysis of radio pharmaceutical samples it is also the perfect solution for the analysis of environmental samples or the determination of very low activities in various samples (food, water, or waste).

The inbuild detector is a solid scintillator containing lanthanides and offering an energy resolution lower than 3.5% (Cs-137, 662 keV). The combination of a three-layer shielding of lead, copper and a polymeric material at 360° ensures a low background and optimized signal to noise ratio. In proper condition, activity as low as a few Bq (i.e 9 Bq of Ga-68) can be easily detected in less than 30 minutes.

The housing has forced ventilation to limit heat accumulation.
This setup doesn't need an active cooling and is an optimal compromise of resolution vs sensitivity which makes the system the perfect choice for the measurement of radionuclidic impurities when the potential impurities profile is established.

MUCHA Nova HR has a sliding lead lid with position detection ensuring optimal traceability.
The system is fully integrated into the GINA X software. The software facilitates easy and intuitive use.

GINA X includes a live spectrum display, spectral analysis, manual and automatic data analysis, calibration, peak integration, half-life time determination and radionuclidic purity determination: in % of a reference value and in Bq of each impurity.

Different measurement modes and settings are available. Automatic energy calibration is achieved by using a suitable calibration source. Background spectra can be accumulated and subtracted automatically. The spectrum resolution can be selected between "low", "medium" and "high" . The nuclide peak can be identified using a nuclear medicine-oriented nuclide library where gamma peaks and half life are stored for each isotope.

All data is stored on the GINA X SQL data base and is integrated into the optional SARA software solution.
The software is designed for GMP use and compliance with the technical requirements of the 21 CFR part 11.
It also includes a comprehensive audit trail and a data file protection.

For advanced GMP needs the system can be extended with a user-access module and a certificate of analysis generator.

Accessories

Different sample holders are available.
The typical sample is a 4 ml HPLC vial (i.e filled with 1 ml sample, diameter 15mm), evacuation or dispensing vials of 10-25 ml are also frequently used (standard diameter 25mm).

Features

- Radionuclidic purity (in %)
- Half-life time determination
- Simple operation
- Life spectrum display
- Advanced spectrum analysis
- Calibration to Bq
- Nucleic data base
- Measurements management
- Internal shielding with shielded lid

Application note

The HR detector offers an improved energy resolution compared to NaI detector increasing the peak detectability at low activity. For some applications, improved resolution is key to allow a proper separation between two nuclides. This is by example the case for Pb-212, a promising alpha therapy isotope. With the HR detector it is possible to have a separate integration of the Pb-212 gamma ray at 238 keV against the contribution of its daughter product Tl 208 (277 keV). It is therefore possible to quantify Pb-212 in a sample based on the 238 keV gamma ray without interference of the daughter products using the High Resolution probe.
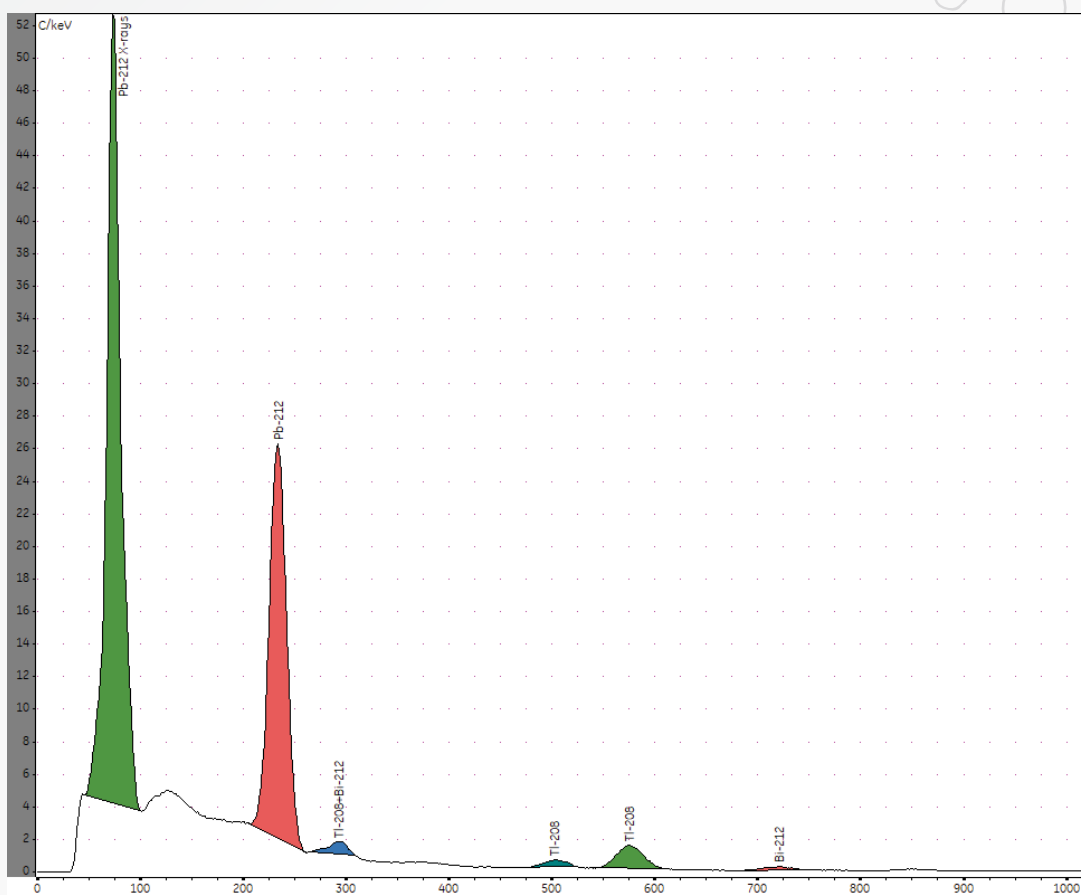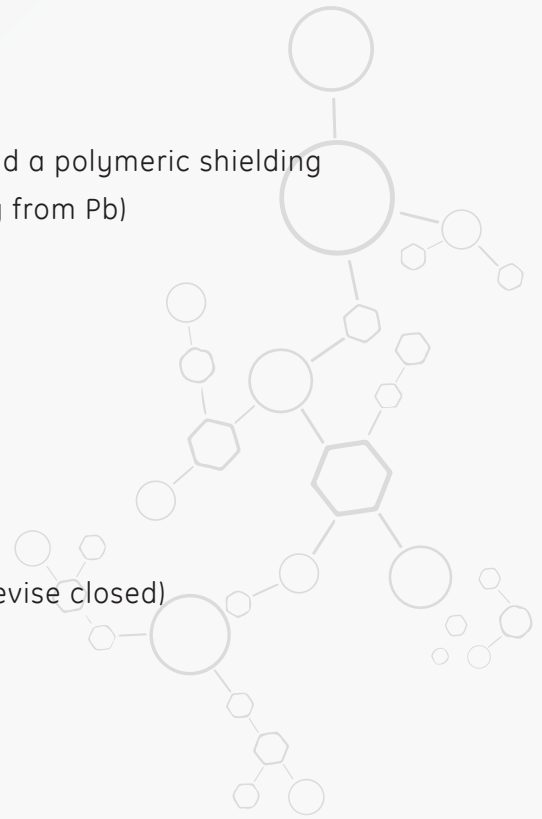

Pb-212 sample analyzed with a H-R probe.

Technical Specifications

Range	4096 channels
Energy range	30-2048 keV
Extended max counts	1 MBq sample of PET tracer (1 minute nuclide identification), no impact on subsequent measurements, accuracy deviation <3%
Energy accuracy	better than 2% (100-1500 keV) after calibration
Status light	Control of the warming-up time, calibration up to date, error (critical or non-critical), device status (ready, measuring)
Digital communication	USB 2.0 & 10/100 Mbit/s Ethernet
High voltage	0-1300 V
Preamplifier	automatic
Amplifier	automatic
Display	on PC (GINA X)
Power	100-240 VAC, 50-60 Hz
Working Temperature	15-40°C
Shielding	inbuild 5 cm lead, a copper and a polymeric shielding (suppression of K-alpha X- ray from Pb)

Physical Specifications

Dimensions	W 250 x H 450 x D 430 mm (devise closed)
Weight	107 kg