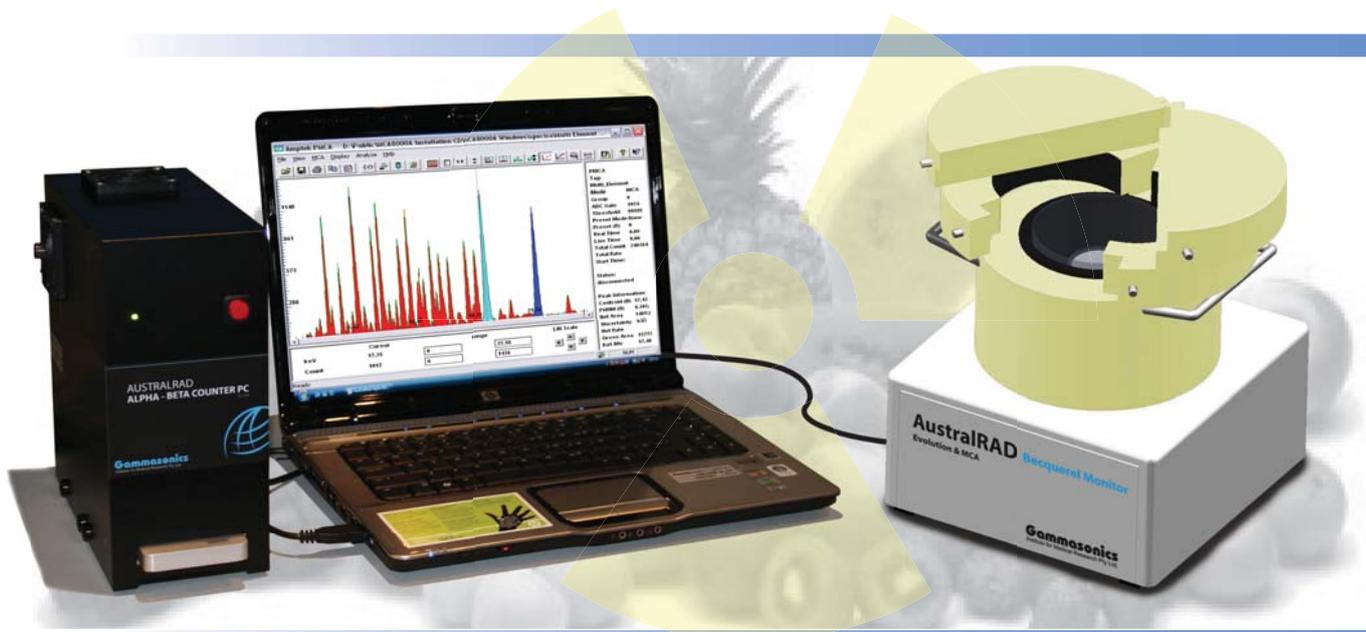


AustralRad BECQUEREL MONITOR

Evolution & MCA



For the detection of Gamma radiation in food and biological products.

Optional

Optional Detector for Alpha and Beta Radiation: -

- The AustralRAD Alpha - Beta Counter PC
- Becquerel Shield

"We specialise only in Technology"



Gammasonics
Institute for Medical Research Pty Ltd.



Gammasonics Institute for Medical Research Pty Ltd is recognised worldwide for innovative research and design utilising technology in the areas of radiation protection, measurement and detection.

Professor Munoz-Ferrada has dedicated over 27 years in Medical and Scientific Radiation Research with Gammasonics positioning it as one of the largest and best known organisations in the industry. His commitment has been recognised worldwide, being invited as a speaker and to perform live surgical demonstrations at associations, hospitals and universities spanning the globe.

As a leader in the field we constantly strive to provide competitive and reliable technology to fulfil the needs of our clients all over the world and to support them today and in the future.

Our quality and integrity are second to none and we will continue our commitment to improvement.

Gammasonics has made a large investment in developing a world class calibration facility as we believe our clients deserve only the best after sales service.

Our ISO 9001 and ISO 13485 accreditations highlight our dedication to quality.

What makes Gammasonics stand out from the rest is our pledge to innovative research, superior solutions, unparalleled service and continuing training and education.

AustralRad BECQUEREL MONITOR

Evolution & MCA

The Gammasonics AustralRAD Becquerel Monitor has been specifically designed and calibrated for the monitoring of food, minerals, liquids and biological products with low radioactivity.

The AustralRAD Becquerel Monitor was originally designed over 15 years ago to supply Special Government Agencies, Embassies, Prime Ministers and Presidents in conflict areas to aid security procedures.

The superior aesthetic designed AustralRAD Becquerel Monitor utilizes the Marinelli Beaker principle to load samples into a shielded chamber for analysis.

The Marinelli Beaker Principle

The principle of Marinelli Beaker dates back to the 1950's, when they were specifically developed to monitor radiation in blood and urine for personnel working in Research Laboratories or Nuclear Processing Plants.

Today, the Marinelli Beaker principle is widely used in many applications across the world in a vast spectrum of industries and is key to conducting accurate volumetric measurements of isotopes with the AustralRAD Becquerel Monitor. Once a homogenic mix has been prepared and deposited in the Marinelli Beaker, the applications are limitless.

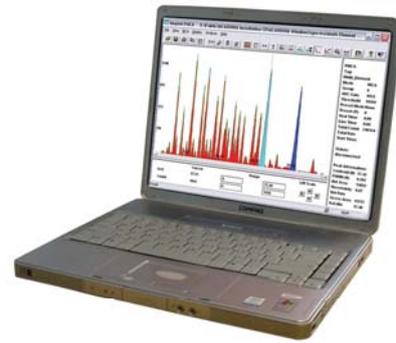
BGO or NaI(Tl) Internal Detector

The high detection efficiency and fast decaying time are the main reasons why we include an internal BGO detector with our standard unit. The 1" x 1" (25mm x 25mm) BGO detector has three times more sensitivity than NaI(Tl) at 500V > 3.5 for the detection of Gamma. However, if preferred by the user, the unit can include a NaI(Tl) scintillator depending on the required measurement of the spectrum.



Software

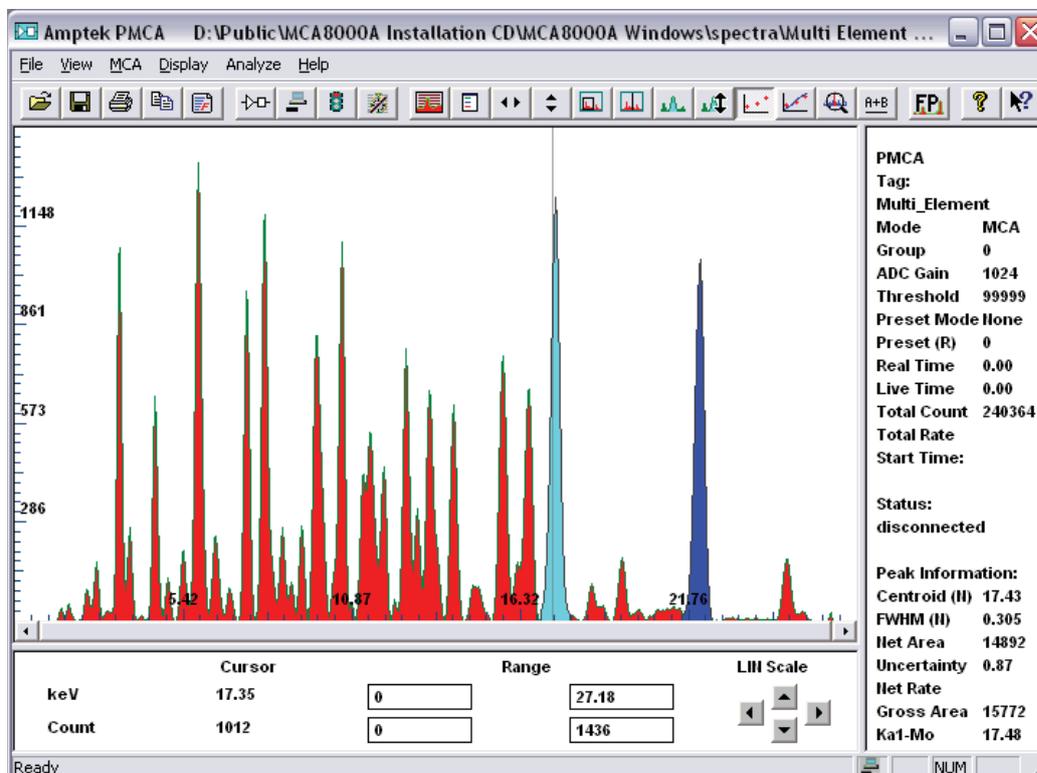
One unique feature of the AustralRAD Becquerel Monitor that sets it apart from its competitors is the fact it is based on digital technology. Many other units available on the market today are analogue and use old software and technology to complete basic tests. Our software and electronics enhance the system making it ideal for laboratory use.



The Gammasonics unit incorporates professional, advanced yet user friendly software and electronics in order to successfully measure the total amount of Gammas in a single sample. As it includes a digital discriminator, the unit minimizes false alarm signals through the modern software programme. Therefore, if the peak of the photon is not complete, the unit will discriminate until a full photon peak is detected.

Most of the analogue radiation detectors utilize to perform this type of work are based on old electronics that do not discriminate so the number of counts and uncertainty can be much higher.

A modern and powerful laptop is included with the purchase of our AustralRAD Becquerel Monitor.

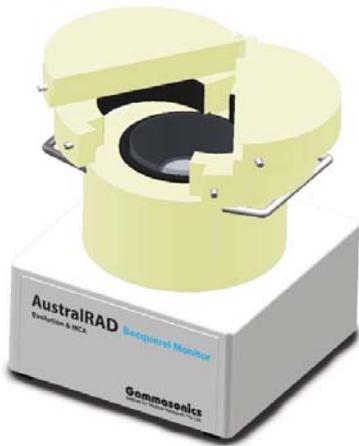


ADMCA Windows Software showing Regions of Interest (ROI)



The AustralRAD Becquerel Monitor Process

For Gamma Detection:



GAMMA DETECTOR

1. Prepare a homogenic mix of the product for assessment. Remember to measure any additional ingredients required to make this mix (such as water or milk) first to identify any possible activity levels.
2. Load the product into the Marinelli Beaker.
3. Set the time required on the laptop software and record the data batch number etc.
4. Press the designated key on the laptop to begin sampling.
5. The results will be automatically displayed with information entered into the database.
6. Save the results for future reference (if required).

Specifications:

General

- Sensitivity: 60 keV to 3.0 MeV
- Accuracy: 10% of full range display, exclusive of energy response
- Detector: High Sensitivity 50 x 50 (2x2")NaI (Ti) Scintillator also available 75 x 75 (3x3")NaI (Ti) Scintillator
- Optimized for 500 keV and for 1.172 MeV axially
- Direct Reading in Bq/Litre or cps or cpm

Measurement Container

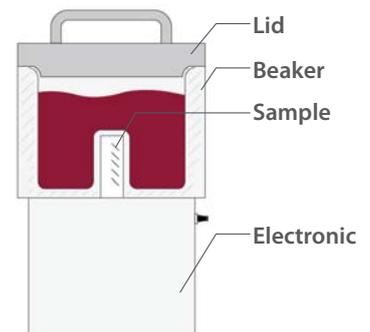
- **Dimensions:**
 - 237 mm Outer Diameter with Handle
 - 215 mm High
 - 137 mm Inner Diameter
 - 45 mm Shielded Lid
- Weight about 90 kg full assembly
- Also can measure to use U-8 and V-5 container in Japan

Laptop

- Intel® Core™ i3, 500GB hard drive
- 2GB RAM (or better)
- Microsoft Windows 7 Professional

Environmental Specs

- Operating temperature: -10oC to + 50oC
- Humidity: 0 – 95% non-condensed (Note: temperatures higher than 40oC will make small changes on the detector depending on type).



BETA & GAMMA DETECTOR



Marinelli Beaker:

Please do not put liquid products directly in to the Becquerel Monitor's chamber. It will damage the instrument. Place sample inside a Marinelli beaker.

It also can measure to use U-8 and V-5 container in Japan



MARINELLI BEAKER
Size: $\Phi 108 \times 100$
Capacity: approximately 500cc



U-8 BEAKER
Size: $\Phi 58 \times 68$
Capacity: approximately 100cc



V-5 BEAKER
Size: $\Phi 135 \times 56$
Capacity: approximately 500cc

Optional items that compliment the AustralRAD Becquerel Monitor:

Becquerel Shield

Unlike other manufacturers that have added 200kg of lead shielding to their sampling devices, we at Gammasonics have chosen to increase the lead shielding content of our AustralRAD Becquerel Monitor reinforces the unit's philosophy of portability and practicality.

The Becquerel Shield Monitor (sampling beaker) permitting easy sampling and collection of data. The controlling and measuring laptop is located next to the Shield.

The Shield consists of easy moving of the lid plus interlocking lead shield. The Becquerel Shield is easy to assemble and disassemble by one individual as each section of the Shield weighs no more than 50 kg.

As the background in Japan had altered with the occurrence from the leakage around Fukushima Reactor and other sources that might be buried all across the Japanese coastline in shallow depths, the Becquerel Shield give more accurate and lower reading. Trying to measure below 20 MBq/L will be difficult as it is lower than the natural background currently in Japan.

The total weight of the Becquerel Shield including the AustralRAD Becquerel Monitor is about 90 kg.



Optional : AustralRAD Alpha - Beta Counter PC

To detect and analyze Alpha or Alpha/Beta emitting radionuclides.

The AustralRAD Alpha-Beta Counter PC sample counting system was developed by Gammasonics to detect and analyze Alpha or Alpha/Beta emitting radionuclides whilst helping to reduce the long time delay between sampling and data availability.

The AustralRAD Alpha-Beta Counter PC is a fully integrated system that allows the user to achieve measurements and carry out analysis of the information in real-time.

The system can be programmed to perform remote sampling or simply transmit the data to a remote site utilizing a network system or Internet from anywhere in the world.

The unit uses a scintillator with a built in stainless steel sample holder. A high voltage supply, pre-amplifier and software integrated into the laptop assist to complete the system.

The AustralRAD Alpha-Beta Counter PC is a flexible tool that can be accommodated with a Multi Channel Analyser (MCA) as an option if required.

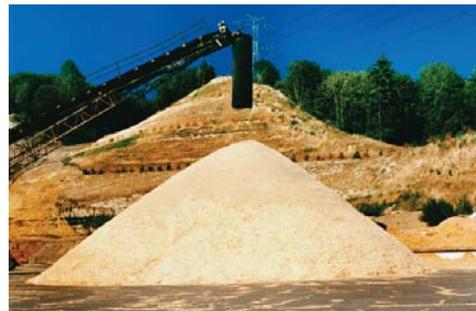
The AustralRad Alpha-Beta Counter PC can also be supplied as a Beta detector or a dual phosphor Alpha/Beta scintillator with the built in sampler holder for the simultaneous acquisition of Alpha/Beta sampling counting.

For Alpha we utilize ZnS(Ag). For Alpha and Beta we employ ZnS (Ag) and a plastic scintillator.



Applications

- Mining Industry
 - Uranium
 - Sand
 - Thorium
- Petro Chemical Industry
- Research Laboratory
- Universities
- National Disasters



Specifications

INDICATED USE: Alpha-Beta sample counting

SCINTILLATOR: ZnS(Ag)

WINDOW: Typically 0.4 mg/ square cm aluminized mylar

SAMPLE HOLDER: O-ring sealed stainless steel slide

SAMPLE SIZE: 2.5cm diameter X 0.15cm thick

EFFICIENCY: (4pi geometry): Typically 30% - Th-230

TUBE: 3.8cm diameter magnetically shielded photomultiplier

OPERATING VOLTAGE: Typically 500 - 1200 volts

DYNODE STRING RESISTANCE: 100 megohm

CONNECTOR: USB

CONSTRUCTION: Sturdy Plastic Housing

TEMPERATURE RANGE: -20° C to 50° C May be certified for operation from -40° C to 65° C

SIZE: 23.5cm (L) x 10.5cm (W) x 22.6cm (H)

Sample Tray: 4.6cm W X14cm L

WEIGHT: 1.25 kg approx.

Optional Alpha Attachment Specification:

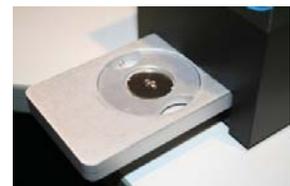
- Detection End Window
- Alpha Filter including Charger
- Electronics plus Evacuation Fan

PC :

- Powerful laptop (if sold separately)

Software :

- Allows the user to set alarm level as required
- Radiation displayed in CPS, Bq/L, Ci and data logging for all sampling measurement
- Automatic background subtraction
- Visual and audible on screen activity indicator
- Password protected user account for different access levels
- Searching of historical data log, which can then be exported to CSV format
- User friendly software application



POLONIUM 210 - NOW EASY TO DETECT -

Polonium 210 is one of the isotopes of main concern for National Security.

Polonium 210 was discovered by Marie Curie in 1896 and is a rare, highly radioactive material that decays in Alpha particles. This chemical is similar to Tellurium and Bismuth and is normally found in Uranium ores. When mixed with Beryllium neutrons are produced upon absorption of the Alpha particles.

Polonium 210 is widely used:

- In the space craft industry as a heating product.
- In the thermo-electric industry.
- As a neutron trigger in nuclear weapons.
- In the textile industry to eliminate static electricity charges.

The measurement of Polonium 210 is very difficult due to its short travelling distance (approx. 10mm with a low penetrating power) and a half-life of 138 days (1 curie = 37 GBq).



Medical Calibration Laboratory

Gammasonics Medical Calibration Laboratory is traceable to the Australian National Standard for gamma on absorbed dose, traceable to CSIRO National Standard Measurement Laboratory for kVp, NATA accreditation pending, operational standards certified to ISO 9002, ISO13485, ISO17025 & TGA.

"Gammasonics has made a large investment in developing a world class calibration facility in Australia. Gammasonics not only repairs, services and calibrates, it has been foremost in developing innovating technology. In the last 25 years we have seen many changes in the industry. Thank you for trusting Gammasonics."



1. Mammography X-ray Calibration Laboratory

Gammasonics has designed state-of-the-art equipment utilised in the medical calibration laboratory. (24-34kV)

- ionising calibration laboratory utilising an innovative style and new approach to calibration techniques
- general X-ray calibration laboratory, a new approach making the system compact and user-friendly
- mammographic calibration laboratory utilising the state-of-the-art technology in this field

Gammasonics has introduced numerous products and services in the past 25 years and it occupies a unique niche market with few competitors.

Gammasonics also undertakes a variety of other activities, including medical consultancy and provides courses at universities and hospital institutions in Australia and overseas.



3. Service & Repair Department

Gammasonics Radiological Services

Gammasonics provide service and repair for a number of technologies including: survey meters, personal dosimeter, electrometers, neutron monitors to name a few.

Preparing and servicing radiation equipment under one roof in Australasia.



2. General X-ray Calibration Laboratory

This equipment is further utilised at Gammasonics Research and Development Department to assist the company to develop medical and industrial radiation measurement equipment. (50-150kV)

