

BIOSCAN

Liquid Scintillation Counter

Gamma Counter

Luminometer



3H

14C

125I

LUM

Triathler

Triathler

Typical Applications

- ✓ DNA & Protein Labeling
- ✓ Radioimmunoassays
- ✓ $^{14}\text{CO}_2$ H. Pylori Test
- ✓ Wipe Tests
- ✓ Radon in Water
- ✓ Filtration Assays
- ✓ Reporter Gene Assays
- ✓ Luciferase Assays



Luminometer

- Photon counting for high accuracy and extended dynamic range
- High sensitivity for both "glow" and "flash" reagents

Liquid Scintillation Counter

- Instant DPM quench correction
- Alpha / Beta separation
- Optional internal shielding for low background



Easy-to-Use

Start counting with one touch of a key. Methods for most isotopes and luminescence are already programmed.



Portable

Triathler is compact and light; take it from lab to lab or into the field for on-site measurements.



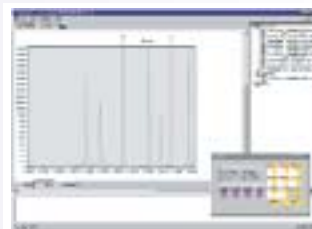
Flexible

Triathler accepts most types and sizes of vials and microcentrifuge tubes.



Sophisticated

Optional software for advanced spectrum analysis, data export to Excel™, and full instrument control.



Excel™ is a registered trademark of Microsoft.

Gamma Counter

- Preset modes for ^{57}Co , ^{51}Cr , ^{131}I , $^{99\text{m}}\text{Tc}$
- Programmable modes for gamma isotopes up to 1000keV



Tritium Wipe Test

	Wad	Glass Fiber	Paper
³ H efficiency	7%	20%	5%
Bkgnd CPM	50	50	50

Alpha Wipe Test

	Paper	Mixed ester	Glass fiber
Alpha efficiency	75%	85%	85%
Bkgnd	0.2	<0.1*	0.9

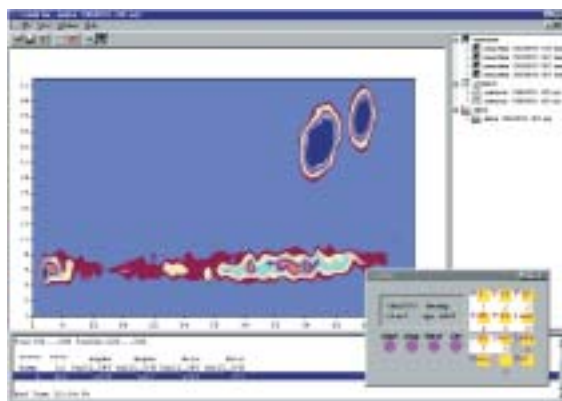
* no Rn-daughters present



³²P Counting Techniques

	Efficiency	Bkgnd	Comment
Cerenkov	40%	<100 CPM	non-destructive
PSA*	75%	<100 CPM	non-destructive
LS "cocktail"	>90%	<150 CPM	destructive

*PSA Plastic Scintillator Adapter



Water Measurements

Triathler has alpha-beta separation electronics, which makes it ideal to detect alpha-isotopes like radon (²²²Rn) in water. The illustration above shows a 2D spectrum for alpha and beta nuclides of ²²²Rn and daughters from a well water sample.

SPECIFICATIONS

Detector:	Photon counting photomultiplier tube
Energy range:	2 keV - 2000keV
Dynamic range:	200CPS - 50,000,000 CPS
Counting time:	0.1 seconds to 99999 minutes
Output:	RS-232C to PC or thermal printer
Power:	110-240V, 12VDC
Dimensions:	L13" (33cm), W10" (25 cm), H7.5" (19cm)
Weight:	20 lbs., 9 kg.

Liquid Scintillation Counting

Samples:	Microtubes, LSC vials or test tubes
Efficiency:	Up to 48% for ³ H
Max count rate:	2,000,000 CPM

Gamma Counting

Detector type:	32 mm x 32 mm (1.25 in.) NaI (TI) crystal detector, through hole (15 mm dia.)
Sample size:	Up to 13 mm diameter tubes or vials
Shielding:	10 mm of lead

Luminescence Counting

Samples:	Microtubes LSC-vials or test tubes
Max. count rate:	3 x 10 ⁷



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