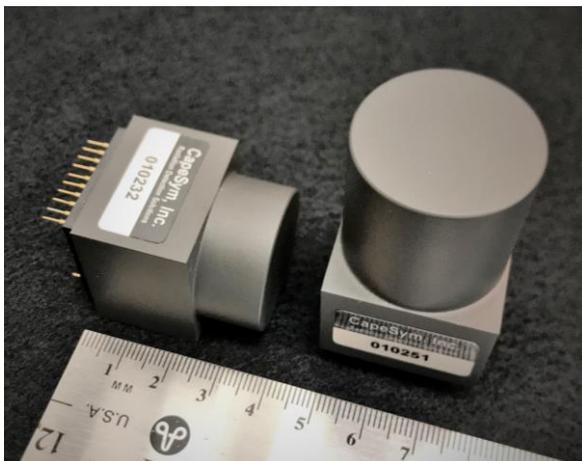




# ScintiClear™ SPRD Detector Core Solutions

CapeSym's new ScintiClear SPRD detector core delivers radiological performance that exceeds ANSI N42.48. It offers high energy resolution, high sensitivity, extremely low internal activity, compact design, and withstands harsh environmental conditions. Read-out is via rugged metal body Super-Bialkali Photomultiplier Tube (PMT). ScintiClear provides accurate spectroscopic information from 0.5  $\mu\text{R/h}$  to 50mR/h dose rate ( $^{137}\text{Cs}$ ). Higher dose rates are measured via the PMT current.

	SC-SPRD-S	SC-SPRD-L*
Crystal size, mm <sup>3</sup>	Ø25.0 x 12.7 (6.1 cc)	Ø25.0 x 25.0 (12.3 cc)
Package dimensions, mm	Ø30.0x30.0 L =40.0	Ø30.0x30.0 L=50.0
ER % at 662keV	3.1 ± 0.2	3.1 ± 0.2
Gamma sensitivity, cps/uR/h at 662keV	1.8	2.8
Internal activity, cps	<0.1	<0.2
Temperature range, °C	-35° to +60°	-35° to +60°
Thermal shock	ANSI N42.48-2008	ANSI N42.48-2008
SIGMA FOM $A\epsilon_p/R$ at 1.17 MeV, cm <sup>2</sup> /%	0.042	0.086



**ScintiClear™** is a SrI<sub>2</sub>(Eu) based scintillation technology manufactured using CapeSym's proprietary crystal growth process. The crystals produced maintain the excellent energy resolution minimizing the negative effects of Eu self-absorption.

\*Larger sizes up to 10 cm long are available upon request

# ScintiClear™ SPRD detector core solutions at a glance

**Scintillator:** CapeSym's **ScintiClear™** is a new ultra-pure  $\text{SrI}_2(\text{Eu})$ -based scintillator made in the USA. Our proprietary crystal growth process improves its inherently excellent performance, and limits the effects of Eu self-absorption. Typical energy resolution of large crystals is  $\leq 3.3\%$ .

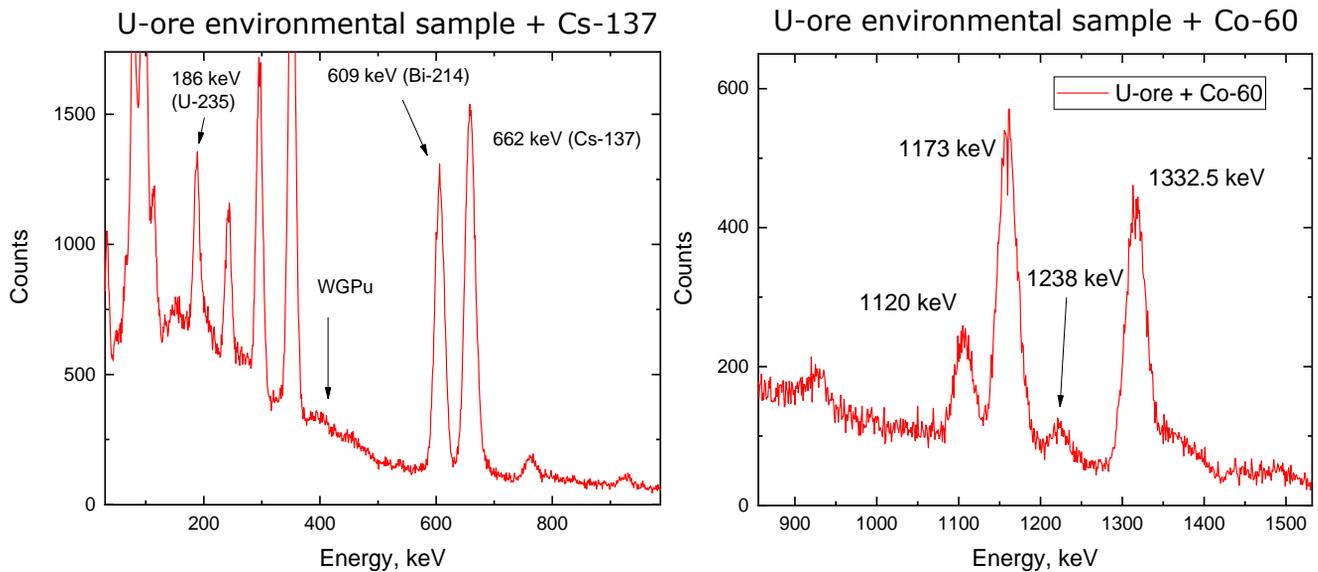
**Sensitivity:** Our **ScintiClear™** SPRD detector core (scintillator + PMT assembly) is designed for maximum sensitivity at given form factor, ranging from 1.8 to 8 cps/ $\mu\text{R}/\text{h}$  at 662 keV.

**Count rate:** With a 12.3 cc **ScintiClear™** crystal, signal integration time does not exceed  $10\mu\text{s}$ , allowing spectroscopic information up to 100kcps (50 mR/hr dose rate). PMT current may be measured in higher count rate situations.

**Energy resolution:** Our **ScintiClear™** crystals have achieved 2.9% ER at 662keV and 2.2% ER at 1332 keV. Guaranteed performance is  $\leq 3.3\%$  ER at 662 keV.

**Encapsulation:** Our encapsulation exceeds ANSI N42.48-2008 environmental performance requirements. Encapsulation with optical, temperature or other sensors is available.

## Unambiguous Identification with ScintiClear™



Critical situations demand immediate and accurate identification of the radiological material present. **ScintiClear™** easily separates the  $^{137}\text{Cs}$  and  $^{134}\text{Cs}$  lines (662 keV and 605 keV respectively) and eases the task of identifying the 186 keV line (HEU) and 414 keV line (WGPu) even in the presence of interfering radionuclides. **ScintiClear™** also offers high energy resolution in the MeV range, and no internal activity. These attributes, combined with good linearity, high density and  $Z_{\text{eff}}$  enable clear identification of 1001 keV line (DU) and high energy environmental peaks.