

# CLLB

## Cs<sub>2</sub> Li La Br<sub>6</sub> (Ce) Scintillation Material

**CLLB** is a gamma-neutron scintillation detector that is well suited for many different classes of hand-held instruments. Using Pulse Shape Discrimination electronics for Neutron Detection, customers can eliminate the need for an additional set of electronics and <sup>3</sup>He detector. With dual gamma/neutron detection and an energy resolution near 4%, CLLB offers a dramatic change in what is possible in a hand-held instrument.

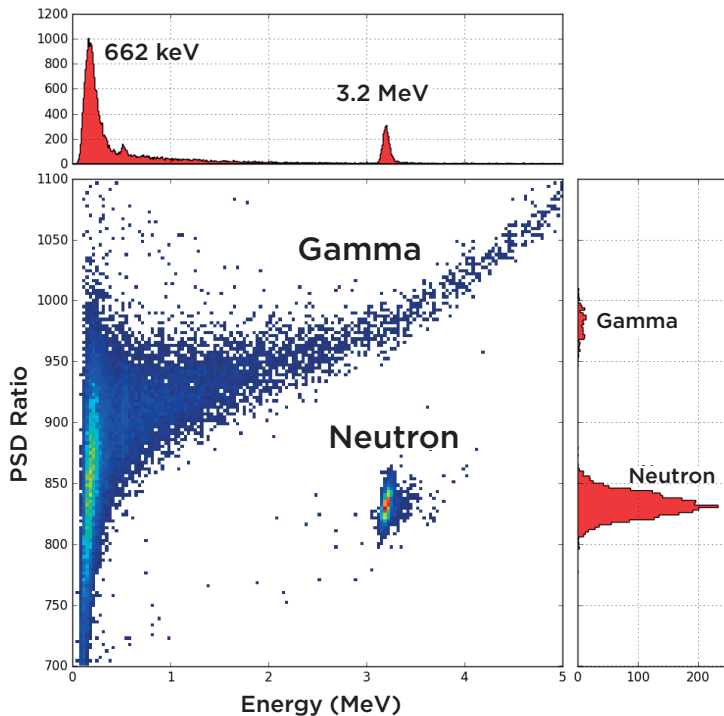
CLLB Typical Data		Value
Energy Resolution (Cs137)		<4.0%
Density		4.2g/cc
Light Output		40,000 ph/MeV
Hygroscopic		Yes
Wavelength of emission max		420nm
SiPM Compatible		Yes
Decay time	γ	180ns (61%) 1080ns (39%)
	n	180ns (50%) 1080ns (50%)
GRR		10 <sup>-7</sup>

In the past you needed both an <sup>3</sup>He and NaI(Tl) detector to detect gamma and neutron.

**CLLB: Your compact dual gamma neutron detector solution**

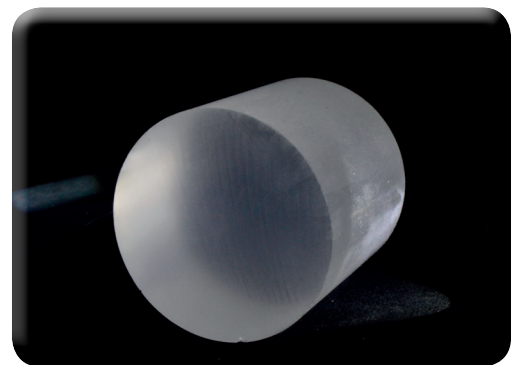


- A. Gamma detector (Sodium Iodide)
- B. Neutron detector (Helium<sup>3</sup> Tube)
- C. Gamma - Neutron Dual detector (CLLB)



**Figure 1.** Pulse shape discrimination to show separation between Gamma / Neutron pulses

Covered by patents US7525100, US7910894, JP5096005, and other patents issued and pending



2 inch diameter x 2 inch **CLLB Crystal**

# CLLB Scintillation Material

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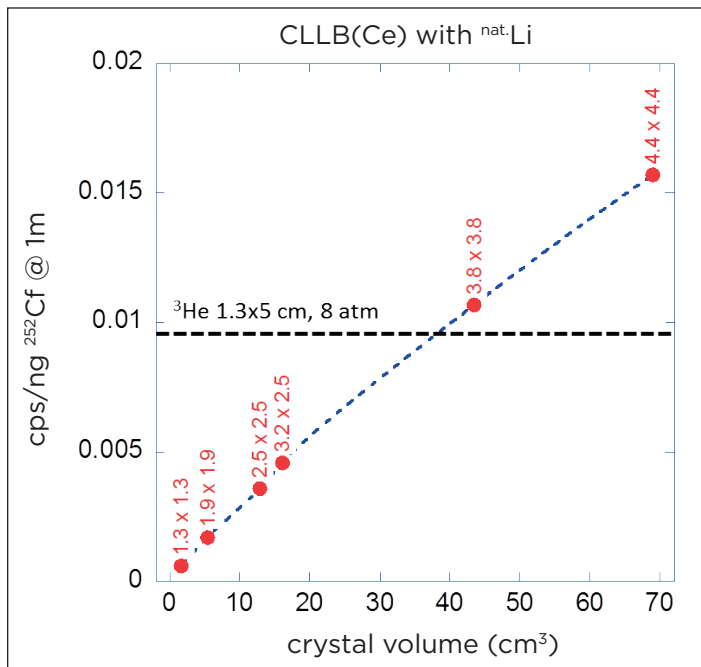


Figure 2. CLLB / <sup>3</sup>He Comparison

## CLLB Crystal Defect Free Growth



2 inch diameter x 4 inch thick

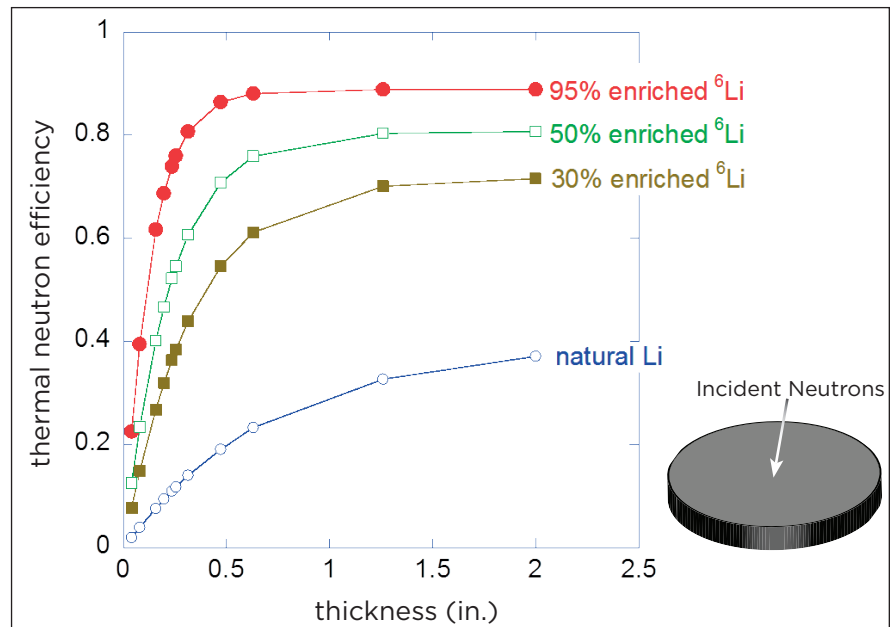


Figure 3. MCNPX2.6 simulations

**SAINT-GOBAIN**

Saint-Gobain Crystals

www.crystals.saint-gobain.com

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Covered by patents US7525100, US7910894, JP5096005, and other patents issued and pending  
 Manufacturer reserves the right to alter specifications.

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