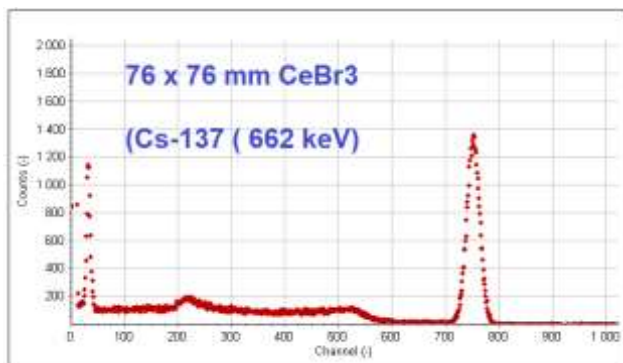


High resolution low background CeBr₃ scintillators

CeBr₃ scintillation crystals offer an alternative to NaI(Tl) crystals for high resolution gamma spectrometry. Above an energy of 200 keV, the resolution is superior to NaI(Tl). CeBr₃ scintillation detectors do not suffer from the intrinsic La-138 background typical for La- halide scintillators.

Density	:	5.2 g / cc
Maximum emission	:	380 nm
Decay time (typical)	:	18-25 ns (size dependent)
Refractive index	:	2.09 (380 nm)
Photons yield	:	Approx. 60.000 / MeV
Hygrosopic	:	Yes
Typical energy resolution @ 662 keV :		4 % FWHM



Energy (keV)	Typical resolution CeBr ₃	Typical resolution NaI(Tl)
30 (129-I)	20 %	18 %
59.5 (241-Am)	13 %	11 %
122 (57-Co)	8 %	8.5 %
662 (137-Cs)	4 %	7 %
1332 (60-Co)	3 %	5.5 %
2600 keV (Th-228)	2.5 %	4.0 %

Maximum dimensions : 127 mm diameter, 152 mm high



Intrinsic background in the Ac-227 complex

CeBr₃ crystals are characterized by a very small intrinsic background due to the presence of Ac-227. This results in a number of peaks between 1500 and 2200 keV. the typical count rate is 0.002 c/s/cc.

References :
 Quarati et al. NIM A 729 (2013) pp 596-604
 L.M. Fraile et al. NIM A 701 (2013) pp 235 - 242
 U. Ackermann et al . NIM A 786 (2015) pp 5-11

Background spectrum
 Inside 100 mm Lead shield

