CSI(TL) SCINTILLATION CRYSTAL BLANK SPECIFICATIONS

Physio-Chemical Properties

Chemical Name:	Cesium Iodide (Thallium Activated)
Chemical Formula:	CsI(Tl)
Density (g/cm^3)	4.52599 (X-ray); 4.52593 (Weigh-Expt.)
Effective Atomic No.	54
Type	Single Crystal
Structure	Cubic, Body Centered (BCC)
Optical Quality	Clear
Index of Refraction	1.795 @ λ_{MAX}
Mechanical Behavior at Room Temp.	Malleable, Soft
Cleavage	None
Hardness (Mho)	Approx. 2.0
Rugged	Yes
Hygroscopic	Slightly
Melting Point (^{0}C)	621

Radiation-Scintillation Properties

Relative light yield, PH (%)-PMT	>25 usually 25-45 (compared to NaI(Tl))
Photon Yield/Mev (PMT Sensor)	56,000
Photon Yield/Mev (Si-PD Sensor)	52,000
Is/Id(amps)PMT-Relative to NaI(Tl)	85
ΔE/E-% FWHM for **Dia. = Ø3.0" x 3.0" L**	**≤ 7.6 BEST MEASURED**
Emission Peak Wavelength (nm)	550
Decay Constant At Room Temp. (ns)	1100
Afterglow at 6 msec (%)	0.1—0.8
Linear Attenuation Coeff. (cm^{-1})	0.4452 (for 500 Kev)
Radiation Length (cm)	1.86
Radiation Hardness To γ Ray (rad)	>45

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Rexon Components,Inc.
24500 Highpoint Road
Beachwood, Ohio 44122-6022 USA

E-mail: sales@rexon.com
Visit us at www.rexon.com

Phone: (216) 292-7373
Fax: (216) 292-7714
Phone (24/7): 440) 585-7086

BGO CRYSTAL BLANK SPECIFICATIONS

Dimensions: **Length_____ Width_____Height_____**

OR

Diameter_____ Length_____

OR **For Other Geometries Attach a Drawing or Sketch**

Tolerances: All dimensions +.25/-.00mm (+.010"/-.000")

Resolution: For **Dia. = Ø2.0" x 2.0" Length ≤** to 9% FWHM @ 662Kev for Cs137*

Appearance: Crystal blanks are to be water white with NO visual imperfections. Such imperfections typically include flock & inclusions, striae, edge cracks due to heat fractures, etc. - The crystal blank should be free from these defects.

*As measured with a catalog spec. Hamamatsu R-1306 2" PMT or equivalent

It is not necessary to measure each and every blank. A representative sample cut from the same boule or ingot-section should meet this performance criteria.

All surfaces supplied be at minimum industry-standard scintillation polish, unless otherwise specified.

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