

Scintillator Crystal Data Table

Material	Nal:TI	Csl:TI	CaF ₂ :Eu	BaF ₂	BGO	YAG:Ce	YAP:Ce	GSO:Ce	CWO	PWO	NB:WO	ZnSe:Te	LAG:Ce
Physical Properties													
Chemical Formula	Nal:TI	Csl:TI	CaF ₂ :Eu	BaF ₂	Bi ₄ GeO ₄	Y ₃ Al ₅ O ₁₂	YAlO ₃	Gd ₂ SiO ₅	CdWO ₄	PbWO ₄	NB(WO ₄) ₂	ZnSe:Te	Lu ₃ Al ₅ O ₇
Density g/cm ³	3.67	4.51	3.18	4.89	7.13	4.57	5.37	6.71	7.9	8.28	7.57	5.42	6.73
Hardness-Moh	2	2	4	3	5	8.5	8.6	5.7	4.0-4.5	3.5-4.0	6		
Hydroscopic	Yes	Slightly	No	No	No	No	No	-	No	No	No		
Crystal Structure	Cubic	Cubic	Cubic	Cubic	Cubic	Cubic	Rhomb.	Mono.	Mono.	Tetra.			Cubic
Therm. Exp. - PPM	47.5	50	19.5	18.4	7.0	8-9	4-11	4-12	10.2	10.0			
Melting Pt – C°	651	621	1360	1280	1050	1970	1875		1325	1125		1779	
Luminescence Properties													
Integrated Light Output (%Nal:TI)	100	45	50	20/2	15-20	15	40	20-25	35-40	5 (of BGO)			15
Wave Length of Max. Emissions (nm)	415	550	435	325/220	480	550	370	440	490	430/520	540		535
Decay Constant n/s	230	900	940	630/0.6	300	70	25	30-60	5000	2/10/30	20		70
Afterglow (% at 6 ms)	0.5-5	<2	<0.3	-	<0.005	<0.005	<0.005	<0.005	0.1	-		<0.05	
Radiation Length cm	2.9	1.86	3.05	2.03	1.1	3.5	2.7	1.38	1.06	0.85	0.98		
Photon yield @ 300K - 10 ³ pH/MeV	38	52	23	10	2-3	8	10	8-10	28	22.6-25.6		8	10