PbWO4 Requirements Summary

PbWO4	r (g/cm3)	8.28
	X0 (cm)	0.89
	Moliere (cm)	2.19
	Growing methods	Czochralsky

Experiment	Light Yield (LY) *phe/MeV*	LY_{Loss} front ^{60}Co ***dose >2Gy***	LY(100ns)/LY(1 integrated LY	τ *ns*	Optical Transm. 360 nm *%*	420 nm *%*	620 nm *%*	Homogeneity at T=50% *nm*	Induced absorption coefficient (dk) m^{-1}	Mean value of dk m^{-1}	Radiation Hardness	Material Surface Tolerances Roughness *um*	Cracks *mm*	Dimensions *mm*
PANDA	16		>0.9	6.5	>=35	>=60	>=70	<=3.0	<=1.1 (at 420nm)	<0.75	dk test: ~30 Gy/10minutes			
CMS	200	<6%		6					1.5-1.6 (at 420nm)		dk test: >100 Gy/h, LY tests: >0.15 Gy/hr (require up to 4 kGy/10 years)	< 0.02		
NPS requirem.	>10-15	<10% (~50kRad)	>0.9		>=35	>=60	>=70					< +- 0.05	<0.5	length: +- 1, lateral: +- 50um

Compare LSO/LYSO (from review for future HEP experiments)

LSO/LYSO	r (g/cm3)	7.4
	X0 (cm)	1.14
	Moliere (cm)	2.07
	Growing methods	

	Light Yield (LY) *phe/MeV*	LY_{Loss}	LY(100ns)/LY(1τ *ns*	Optical Transm. 360 nm *%*	420 nm *%*	620 nm *%*	Homogeneity at T=50%	Induced absorption coefficient (dk)	Mean value of dk	Radiation Hardness
LSO/LYSO	100		40							

Note: current market price for LSO/LYSO may be $40/ccm, which would be comparable to Crytur quotation for PbWO4