

Table 8.2 Properties of representative acousto-optic materials

Material	Point group	Density, ρ (10 ³ kg m ⁻³)	Acoustic wave		Optical wave polarization ^c	Index ^d , n	Figure of merit M_2 (10 ⁻¹⁵ m ² W ⁻¹)	
			Direction ^a	Mode ^b				
Silica glass	Isotropic	2.20	Any	L	5.97	⊥	1.457	1.50
				L	5.97	∥	1.457	0.30
Water	Isotropic	1.00	Any	T	3.76	Any	1.457	0.46
				L	1.50	⊥	1.333	160
				L	3.63	⊥	1.616	4.51
				L	3.63	⊥	1.728	5.00
				L	6.57	⊥	2.201	7.00
LiNbO ₃	3 <i>m</i>	4.64	[100]	L	3.59	⊥	2.291	5.60
			[001]	L	4.20	⊥	2.260	34.5
TeO ₂	422	6.00	[001]	L	4.20	⊥	2.412	25.6
			[110]	T	0.616	Circular	2.260	1200
PbMoO ₄	4/ <i>m</i>	6.95	[001]	L	3.63	⊥	2.386	36.1
			[001]	L	3.63	∥	2.262	36.3
GaP	$\bar{4}3m$	4.13	[110]	L	6.32	∥	3.31	44.8
			[100]	L	5.85	⊥	3.31	10.7
			[100]	L	5.85	∥	3.31	36.3
			[100]	T	4.13	Any	3.31	23.4

^a Acoustic wave propagation direction **K** with respect to crystal axes.

^b L, longitudinal acoustic mode; T, transverse acoustic mode.

^c Optical field polarization **E** with respect to acoustic wave propagation direction **K**, $\perp$, **E** $\perp$ **K**; $\parallel$, **E** $\parallel$ **K**.

^d Refractive index at 632.8 nm optical wavelength. In the case of an anisotropic crystal, the relevant index used is a function of the optical wave polarization with respect to the principal axes of the crystal.