

**Table 10.1** Dielectric constant and refractive index of polar and non-polar materials

Material	(Refractive Index) <sup>2</sup>	$\epsilon'$	Frequency at which $\epsilon'$ measured (Hz)
<i>Non polar:</i>			
C (diamond)	5.66	5.68	$10^8$
H <sub>2</sub> (liquid)	1.232	1.228	$10^7$
<i>Weakly polar:</i>			
polythene	2.28	2.30	$10^2$ – $10^{10}$
paraffin	2.19	2.20	$10^3$
ptfe (polytetrafluoroethylene)	1.89	2.10	$10^2$ – $10^9$
<i>Polar:</i>			
NaCl (rocksalt)	2.25	5.90	$10^3$
TiO <sub>2</sub> (rutile)	6.8	94	$10^3$
SiO <sub>2</sub> (quartz)	2.13	3.85	$10^3$
Soda glass	2.30	7.60	$10^3$
Ruby (Al <sub>2</sub> O <sub>3</sub> )	3.13	4.31	$10^3$
Methanol	1.85	24.3	
Acetone	1.84	20.7	
Water	1.77	80.4	

Ref.: L. Solymar and D. Walsh, *Lectures on the Electrical Properties of Materials*. Oxford: Oxford University Press, fifth ed., 1993.