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Brewster angle, θ_B

When an unpolarized planar electromagnetic wavefront impinges on a flat dielectric surface, there is a unique angle (θ_B), commonly referred to as Brewster angle, at which the reflected waves are all polarized into a single plane.

Notes:

1. Expression for Brewster angle:

$$\theta_B = \arctan \frac{n_2}{n_1} = \arctan \left(\frac{\varepsilon_2}{\varepsilon_1}\right)^{1/2}$$

   where n_2 and n_1 are the refractive indices of the receiving surface and the initial medium, respectively, and ε_2 and ε_1 are the relative static permittivities (formerly called dielectric constants).
2. For a randomly polarized beam incident at Brewster angle, the electric fields of the reflected and refracted waves are perpendicular to each other
3. For a wave incident from air on water ($n = 1.333$), glass ($n = 1.515$), and diamond ($n = 2.417$), the Brewster angles are 53, 57, and 67.5 degrees, respectively.

Source:

PAC, 2007, *79*, 293 *(Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006))* on page 310

