

## Calcite – CaCO<sub>3</sub>

Our calcite crystals are carefully selected to eliminate small inclusions, cleavage planes, clouds and mist, point defects and bubbles inside the crystal. A proprietary processes is used for cutting, grinding and polishing quality optical surfaces. These skills are evident in the high quality of our finished components that enable polarizers to be used with very high peak power lasers. Typical products are: rhombohedral shapes, rectangles and rounds, shaped plates, wedges, and cubes.

### Standard Rhombohedral Sizes

20mm X 20mm X 15mm  
40mm X 40mm X 25mm  
60mm X 60mm X 40mm  
80mm X 80mm X 50mm

30mm X 30mm X 15mm  
50mm X 50mm X 30mm  
70mm X 70mm X 45mm  
100mm X 100mm X 60mm

### Polishing Capability

**Surface Quality:** 20/10 Scratch and Dig  
**Dimension tolerance:**  $\pm 0.1$ mm  
**Beam Deviation:** < 3 arc. min.  
**Optical axis orientation:** + /-0.5°  
**Flatness:** 1/4 @ 632.8 nm  
**Transmission wavefront distortion:** < 1/2 @ 632.8 nm

### Crystal Data

**Transparency Range:** 350nm - 2300nm,  
**Particle Shape:** Crystalline Rhombihedral  
**CaCO<sub>3</sub> content:** 99.94%  
**Density:** 2.710 g/cm<sup>3</sup>  
**Mohs Hardness:** 3.10  
**Luminousness:** UV<sup>3</sup> 72% VL<sup>3</sup> 85% IR<sup>3</sup> 88%  
**Hygroscopic Susceptibility:** low susceptibility to moisture  
**Thermal Expansion Coefficient:** aa = 24.39 x10<sup>-6</sup>/K; ac = 5.68 x 10<sup>-6</sup>/K  
**Crystal Class:** negative uniaxial with no= na= nb, ne= n  
**Refractive Indices, Birefringence** (Dn = ne - no) and Walk-off Angle at 45° (r):  
1). no = 1.71425, ne = 1.51140, Dn = -0.20285, r = 6.20° at 0.312 mm  
2). no = 1.63457, ne = 1.47744, Dn = -0.15713, r = 6.32° at 1.497 mm  
**Sellmeier Equation** (l in mm):  
1). no<sup>2</sup> = 2.69705 + 0.0192064/(l<sup>2</sup> - 0.01820) - 0.0151624l<sup>2</sup>  
2). ne<sup>2</sup> = 2.18438 + 0.0087309/(l<sup>2</sup> - 0.01018) - 0.0024411l<sup>2</sup>