

Calcite – CaCO₃

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: $\pm 0.1\text{mm}$
Beam Deviation: < 3 arc. min.
Optical axis orientation: $+/-0.5^\circ$
Flatness: $1/4 @ 632.8 \text{ nm}$
Transmission wavefront distortion: $< 1/2 @ 632.8 \text{ nm}$

Crystal Data

Transparency Range: 350nm - 2300nm,
Particle Shape: Crystalline Rhombihedral
CaCO₃ content: 99.94%
Density: 2.710 g/cm³
Mohs Hardness: 3.10
Luminousness: UV³ 72% VL³ 85% IR³ 88%
Hygroscopic Susceptibility: low susceptibility to moisture
Thermal Expansion Coefficient: aa = $24.39 \times 10^{-6}/\text{K}$; ac = $5.68 \times 10^{-6}/\text{K}$
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). no² = $2.69705 + 0.0192064/(l^2 - 0.01820) - 0.0151624l^2$
2). ne² = $2.18438 + 0.0087309/(l^2 - 0.01018) - 0.0024411l^2$