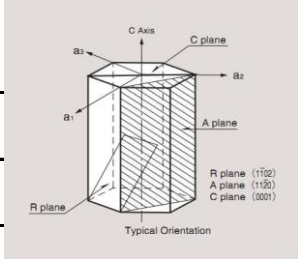


人工合成蓝宝石特性

Properties Of Synthetic Sapphire

物理特性 Physical Properties	
晶体结构 Crystal Structure	六方晶格单晶体 Rhombohedral Hexagonal Single Crystal
化学分子式 Chemical Composition	Al_2O_3
一般纯度 Common Purity	99.99%~99.999%
比重 specific gravity	3.99~3.98
 <p style="text-align: center; font-size: small;">Unit Cell of Sapphire</p>	
机械特性 Mechanical Properties	
莫氏硬度 Mohs' Hardness	莫氏硬度9, 努普硬度 $\geq 1700\text{kg/mm}^2$ Mohs9, Knoop $\geq 1700\text{kg/mm}^2$
弹性模量 Modulus of Elasticity	$3.5 \times 10^6 \sim 3.9 \times 10^6 \text{ kg/cm}^2$
抗压强度 Compressive Strength	$2.1 \times 10^4 \text{ kg/cm}^2$
抗拉强度 Tensile Strength	$1.9 \times 10^3 \text{ kg/cm}^2$
热力特性 Thermal Properties	
熔点 Melting Point	2050°C
软化点 Softening Point	1800°C
比热 Specific Heat	0.18 (at 25°C)
热膨胀系数 Thermal Expansion	$6.7 \times 10^{-6} // \text{C-axis } 5.0 \times 10^{-6} \pm \text{C-axis}$
化学特性 Chemical Properties	
耐酸碱性能 Acids and Alkalis Attack	不被一般酸和碱腐蚀, 在300°C时会被HF 腐蚀 No attacked by acid or alkalis, Attacked by HF at 300°C
电气特性 Electrical Properties	
介电常数 Dielectric Constant	7.5~10
电阻系数 Electrical Resistivity	$10^{11} \Omega/\text{cm}$ at 500°C, $10^6 \Omega/\text{cm}$ at 1000°C $10^3 \Omega/\text{cm}$ at 2000°C
光学特性 Optical Properties	
折射率 Refractive Index	1.769//C-axis, $1.760 \pm \text{C-axis}$ at 0.5893 μm
可见光 Visible Light	>85% Excellent
红外透过率 Infrared	85% 0.75~4 μm , 70% 4.7 μm , 50% 5.2 μm
紫外线透过率 Ultraviolet	80% 0.4~0.3 μm , 60% 0.28 μm , 50% 0.2 μm