

# RUBY Verneuil corindon

ROHS & REACH COMPLIANT

## Physical properties

<b>CRYSTALLINE STRUCTURE</b>	rhombohedral hexagonal single
<b>COMPOSITION</b>	$\text{Al}_2\text{O}_3 + \text{Cr}_2\text{O}_3$
<b>PURITY</b>	99,99%
<b>MAIN IMPURITIES</b>	$\text{Na}_2\text{O}$ , Si, Ca, Fe, Ga, Mg, Ti, Mn, Pb, Cu, Zn, Ni
<b>CLEAVAGE</b>	conchoidal
<b>DENSITY</b>	3.99 – 3.98 g/cm <sup>3</sup>
<b>DISLOCATION DENSITY</b>	$10^9 - 10^8 / \text{m}^2$

## Thermal properties

<b>MELTING POINT</b>	2320 K
<b>SOFTENING POINT</b>	2070 K
<b>SPECIFIC HEAT</b>	$7.5 \cdot 10^2 \text{ j/kg} \cdot \text{K}$ at 300 K
<b>THERMAL CONDUCTIVITY</b>	40 W/m · K ⊥ at 300 K
<b>THERMAL EXPANSION</b>	$6.2 \cdot 10^{-6} / \text{K} // \text{C-axis}$ $5.4 \cdot 10^{-6} / \text{K} \perp \text{C-axis}$

## Mechanical properties

<b>HARDNESS</b>	Mohs 9 Knoop 2200 face // 1800 face ⊥ C-axis
<b>YOUNG'S MODULUS</b>	$4.4 \cdot 10^{11} \text{ Pa}$ at 300 K
<b>MODULUS OF RUPTURE</b>	$4.0 \cdot 10^8 \text{ Pa}$ at 300 K
<b>COMPRESSIVE STRENGTH</b>	$2.1 \cdot 10^9 \text{ Pa}$ at 300 K
<b>TENSILE STRENGTH</b>	$1.9 \cdot 10^8 \text{ Pa}$ at 300 K
<b>POISSON'S CONSTANT</b>	0.30

## Chemical properties

<b>ACIDS AND ALKALIS ATTACK</b>	0 at 570 K
<b>POROSITY</b>	0

## Electrical properties

**DIELECTRIC CONSTANT**

10.6 electric field // C-axis at 300 K

**ELECTRICAL RESISTIVITY**

8.6 electric field ⊥ C-axis at 300

$10^9 \Omega \cdot \text{m}$  at 770 K

$10^4 \Omega \cdot \text{m}$  at 1270 K

$10 \Omega \cdot \text{m}$  at 2270 K

## Transmission

**RUBIS N°5 (EP. 2 MM)**

