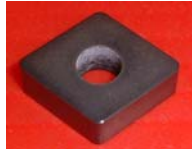



Table I: Comparison of mechanical properties of pressureless sintered SiAlON and hot-pressed alumina-silicon carbide whiskers composites

Cutting Tools Insert	Fracture Toughness K_{IC} (MPa·m ^{1/2})	Hardness (GPa)
Cutting tool insert based on <i>SiAlON</i> 	8.76	16.87
Cutting tool insert based on Alumina- silicon nitride whiskers 	7.47	17.36

Other qualities of SiAlONs and silicon nitride ceramics are presented in Table II.

Table II: Density, hardness and fracture toughness of various grades of SiAlON and silicon nitride ceramics manufactured by www.sialon.com and partners.

Sample	ALU 1	ALU 2	ALU 3	ALU 4	ALU 5
Theoretical Density %	99.7	99.4	99.7	98.8	98.4
Hardness H_V , GPa	15.42	14.94	14.83	13.2	17.79
K_{IC} , MPa·m ^{1/2}	8.01	8.27	8.55	10.2	7.36

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