

Graphitic Carbon nitride powder

Grade A, as received from the synthesis (unground)

▶ Chemical Formula	$C_3N_{4+x}H_y$
▶ Chemical purity	≥ 99.5 wt. %
▶ Color	yellow brownish
▶ Density	2.336 g/cm ³
▶ Particle size, d ₅₀	> 30 microns
▶ Specific surface area	> 35 m ² /g
▶ Thermal conductivity*	1.25 W/mK
▶ Temperature stability	In inert atmosphere 650 °C In air N.A. In vacuum N.A.
▶ Moisture content	≤ 4 wt. %

*measured from a sintered compact with approximately 80% theoretical density

The particle sizes (d₅₀) of 1.5 microns and 390 nm are typically available through ball milling and pearl milling, respectively. In addition to being dielectric, chemically inert and thermally conductive, carbon nitrides are generally non-toxic and biocompatible. Graphitic carbon nitride can also be made into PVD targets, facilitating production of functional carbon nitride thin films in amorphous and crystalline form. So far, especially successful results have been received through pulsed laser deposition.

Main application areas include:

- ▶ Functional carbon nitride films, via PVD
- ▶ Medical applications, such as cell culture plates with high wettability and cell growth
- ▶ Wear resistant, transparent thin films, also on plastics
- ▶ Transparent films with tunable, optimal refractive index
- ▶ Heat transfer material, with high thermal conductivity, corrosion and wear resistance
- ▶ Transparent, passive diffusion barrier
- ▶ Dry lubricant, as a non-toxic alternative
- ▶ PEM fuel cell catalyst, for replacing expensive platinum catalyst