

Sintering technologies



CTTC has different means for the thermal treatment for ceramics, including steps such as drying, debinding, annealing and sintering. Equipment with various size allows to treat small-size samples as well as large parts.

OUR SERVICES

- Powder calcination and loss on ignition
- Debinding under air or nitrogen
- Supercritical extraction
- Sintering under air, vacuum, or controlled atmosphere
- Nitriding under nitrogen flow, up to 1600 °C
- Spark Plasma Sintering or Hot Pressing
- Ceramic-metal assembly
- Glass sealing
- R&D, prototypes, up-scaling

SOME EXAMPLES

- Ceramic sintering (oxides, carbides, nitrides)
- HT reaction synthesis
- Reaction bounded silicon nitride production
- Spark plasma sintering of nanopowders

OUR MEANS

- Debinding kilns
(T. max. 1200 °C, static air, Vol. 180 L)
- Kilns (T. max. 1300 °C, static air, Vol. 13-40 L)
- Supercritical Fluid Extractor
(P. max. 240 bars, T. max. 80°C, process fluid: CO₂)
- Calcination kiln for biomedical applications
(T. max. 1300 °C, static air, Vol. 7,5 L)
- Debinding / Sintering kiln
(T. max. 1750 °C, static or forced air, Vol. 64 L)
- Vertical tubular kiln
(T. max. 1450 °C, controlled atmosphere, D15 cm H150 cm)
- Large kiln (T. max. 1350 °C, static air, Vol. 770 L)
- Superkanthal sintering kiln (T. max. 1800 °C, static air, Vol. 10 L)
- Superkanthal sintering kiln (T. max. 1750 °C, static air, Vol. 32 L)
- Lifiable floor furnace (T. max. 1600 °C, static air, Vol. 120 L)
- Chamber furnace (T. max. 1400 °C, static air, Vol. 700 L)
- Non-oxyde sintering kiln (T. max. 2000°C, static air, inert atmosphere, Vol. 200 L, usable under vacuum up to 1500 °C)
- Spark Plasma Sintering platform
(T. max. 2400 °C, inert atmosphere or vacuum, I. max. 8000 A, P.max. 25 tons, Die maximum diameter 100 mm)
- Hot Pressing (T. max. 1800 °C, inert atmosphere, P. max. 10 tons, Die maximum diameter 50 mm)
- Nitridation furnace (T. max. 1500 °C, nitrogen, Vol. 150 L)



1. Tubular kiln for sintering under controlled atmosphere
2. SPS Platform
3. Spark Plasma Sintering
4. Sintering kiln 2000 °C
5. Silicon carbide DPF