

# NK-PyC

**Material:** CVI or CVD Pyrolytic Graphite

**Application:** Semiconductor, Poly-Si, Precious Metals, High Temperature

NKCG has several furnaces dedicated to the deposition of coatings using CVD or CVI processes. The different parameters essential for CVD and CVI can be tuned in order to fit the specifications.

## Typical Technical data

<b>Property</b>	<b>metric</b>	
	Value	Unit
Bulk density	2.10 – 2.24	g/cm <sup>3</sup>
Electrical resistivity		
- c direction	1000 - 3000	μΩm
- ab directions	4 - 5	μΩm
Flexural strength (c direction; AG)	80 - 170	MPa
Young`s Modulus	28 - 31	GPa
Tensile strength (ab directions; WG)	110	MPa
Thermal conductivity:		
- c direction	1 – 3.5	W/mK
- ab directions	190 - 40	W/mK
Thermal expansion 0 – 100°C:		
- c direction	15 - 25	x10 <sup>- 6</sup> /mK
- ab directions	-1 - 1	x10 <sup>- 6</sup> /mK

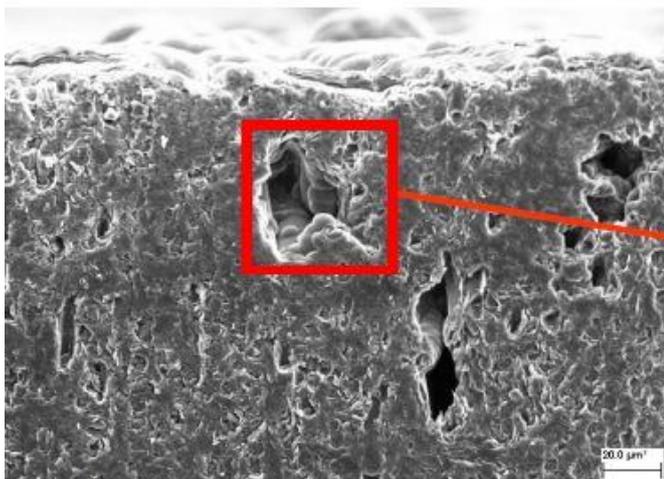
## **General Information**

Chemical vapor deposition (CVD) is a versatile process for the manufacturing of coatings. Basically, this process is based on a chemical reaction between a substrate material and vapor phase precursors. Our coatings are based on Thermal CVD, Where the deposition process is promoted by heat.

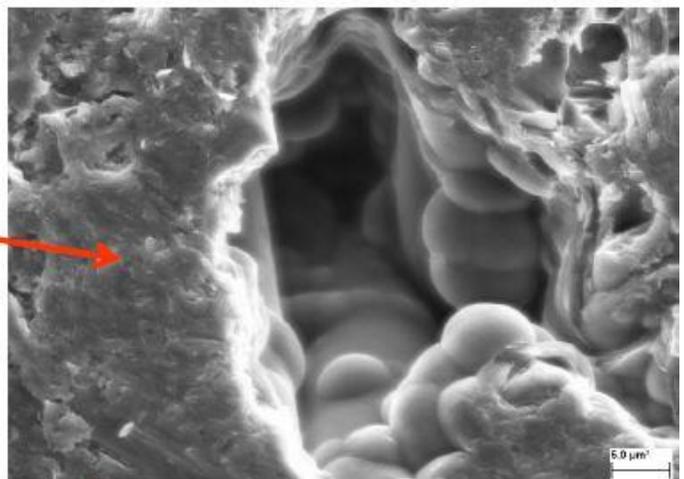
CVD enables a deposition of homogeneous layers from some nm up to some micrometer on the surface of a broad range of substrates (shape or material). However, some applications such as the reinforcement of CFC or insulation grades need to deposit the coating inside the pores of the material without closing them. For these applications, NKCG offers the possibility to perform chemical vapor infiltration (CVI).

CVI is a type of CVD in which the reactive gas infiltrates the porous material that has to be covered. It allows the deposition in the depth of the structure. This will densify the structure of the material. The chemistry and thermodynamics for CVD and CVI are essentially the same, only the kinetics is different.

## **SEM of CCM-400C (Carbon Composite) with PyC CVI**



MEB, SE, x500



MEB, SE, x2000

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