SUPPORTING INFORMATION

Elaborating Ordered Silicon Carbide Nanorods by Preceramic Polymer Nanocasting

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Use of the t-plot method of De Boer in determination of SSA assigned to the meso-porosity
Nitrogen physisorption measurements were performed using a ASAP 2020 at 77 K, after outgassing at 623 K during 8 hours, reaching a pressure below 1 mmHg, and specific surface areas were calculated using the BET method. N₂-isotherms were transformed into t-plots by converting relative pressures ($p/p^0$) into $t$-values via equation:

$$t = \frac{0.1399}{(0.034 - \log(p/p^0))^{0.5}}$$

where $t$ [nm] is the thickness of the adsorbed multi-molecular layer and the ratio $p/p^0$ the relative pressure. The $t$-plots $\frac{V_{adsorbed}}{f(t)}$ are thus obtained.

In the particular case of a micro- and meso-porous material, this curve is a straight line at low relative pressure (before the capillary condensation related to the meso-pores). The slope $s_t$ of this straight line is directly rely to the SSA assigned to meso-porosity ($SSA_{meso}$). Thereby, in the case of the adsorption of N₂ at 77 K, the $SSA_{meso}$ is given by the equation:

$$SSA_{meso} = 0.0346 \times s_t$$

References:

Chemical reaction equation
Bis(cyclopentadienyl)-bis(diphenoxy)titanium synthesis:
$$(C_5H_5)_2TiCl_2 + 2PhOH + 2NaH \rightarrow (C_5H_5)_2Ti(OH)_2 + 2NaCl + H_2$$

Hydrosilylation reaction
$$R_2SiH_2 + R'-CH=CH_2 \rightarrow R_2SiH-CH_2-CH_2-R'$$

Dehydrogenative coupling reaction
$$R_2SiH_2 + R'SiH_2 \rightarrow R_2SiH-SiHR' + H_2$$
**Figure S1** polymerisation of TSCH by dehydrogenative coupling catalyzed by Cp₂Ti(OPh)₂.

**Figure S2** Wide-angle XRD patterns of pTSCH and pSMP10 after heat treatment at 1000 °C under inert atmosphere.
**Figure S3** Nanocasting schematic representation with SMP10 and pTSCH.

**Figure S4** SEM images of SiC-S2t.

**Figure S5** SEM image of SiC-Sc with its schematic representation. The three domains are exhibited in this image: dense, meso- and micro-porous SiC.
Figure S6 TEM images of (a) SiC-S2t and (b) SiC-T2t.
Figure S6 TEM images of the nanorods network of (a) SiC-S2t and (b) SiC-T2t with greyscale profile obtained by integration of the red scare through the horizontal axis. (c) Schematic representation of the nanorods network with the expected greyscale profil. The centre-to-center distance $a$ between the nanorods is respectively equal to 6.9 and $7.1 \pm 0.5$ nm for SiC-S2t and SiC-T2t.

Figure S7 Schematic representation of the 2D-hexagonal lattice of (a) a SBA-15 and of (b) its SiC inverse replica. The grey regions represent respectively the SiO$_2$ and the SiC. The porous network appears in white.

$S_{\text{lattice}} = \frac{\sqrt{3}}{2} \pi a^2 \approx 52 \text{ nm}^2$

$S_{\text{porous}} = \frac{1}{2} \pi r^2 \approx 15 \text{ nm}^2$

$S_{\text{SiC}} = S_{\text{lattice}} - S_{\text{porous}} = 37 \text{ nm}^2$

$\delta_{\text{SiO}_2} = \frac{S_{\text{SiO}_2}}{S_{\text{lattice}}} = 71 \%$

$\delta_{\text{porous}} = 29 \%$

$d_{\text{SiC}(100 \degree \mathrm{C})} \approx d_{\text{SiO}_2} \Rightarrow \delta_{\text{SiC}} = 29 \%$