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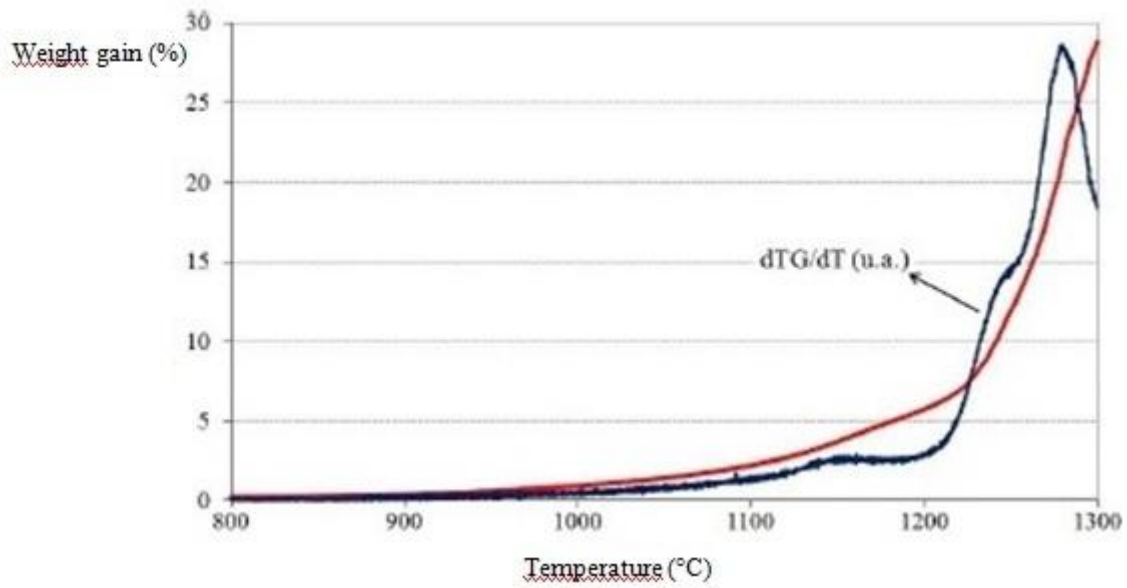
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**Figure 8.** SEM images of cross section of CMC7.

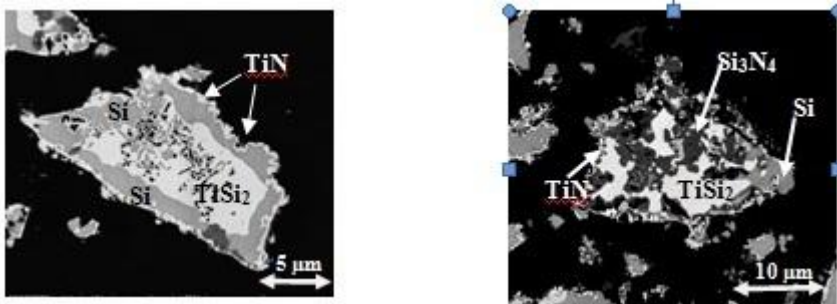
**Table 1.** Ceramic precursor

**Table 2.** Milling conditions and characteristics of milled powders.

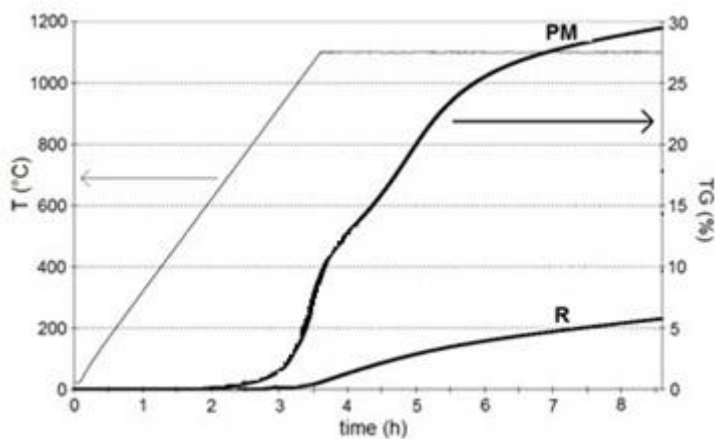
**Table 3.** Flexural strengths of the CMC prepared under various conditions.



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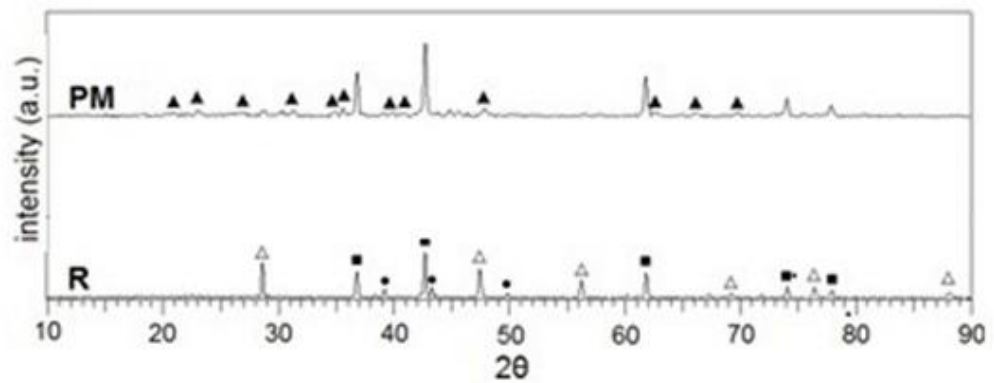


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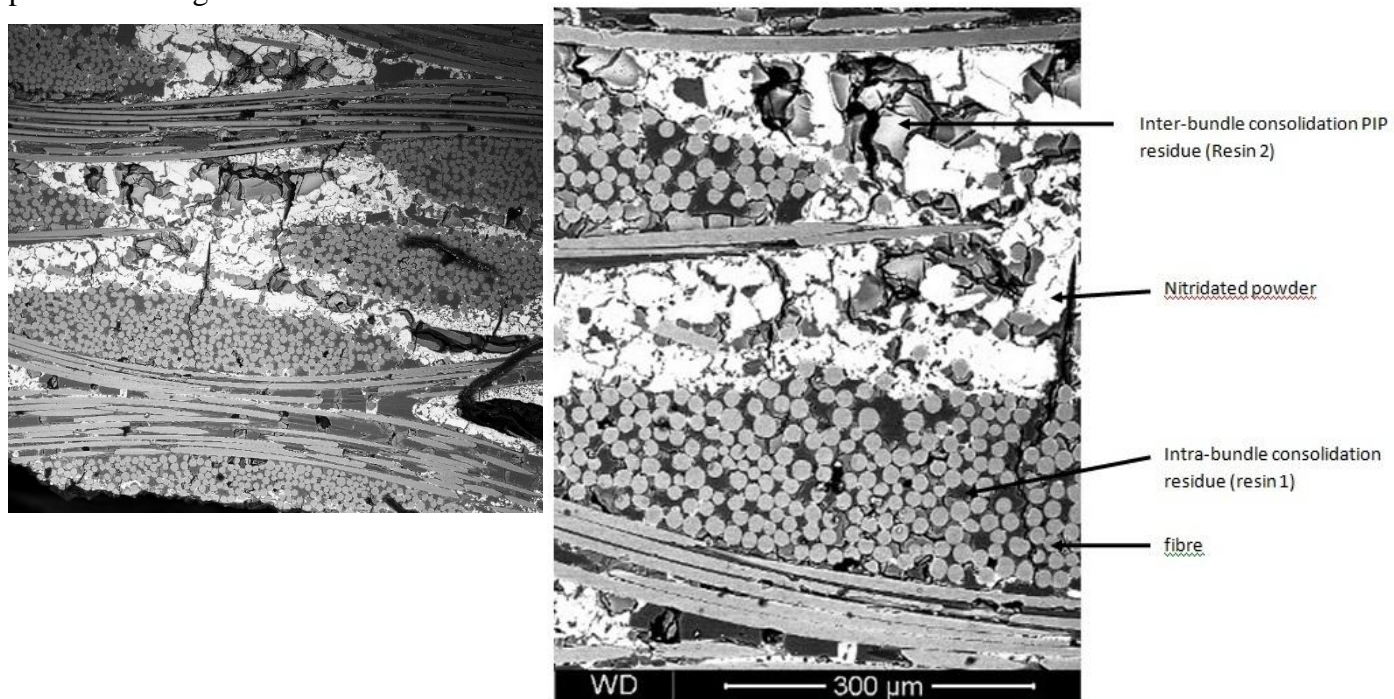


**Figure 3.** Thermogravimetric curves of raw (R) and milled (PM)  $\text{TiSi}_2$  powders heated up to  $1100^\circ\text{C}$  in  $\text{N}_2$ .

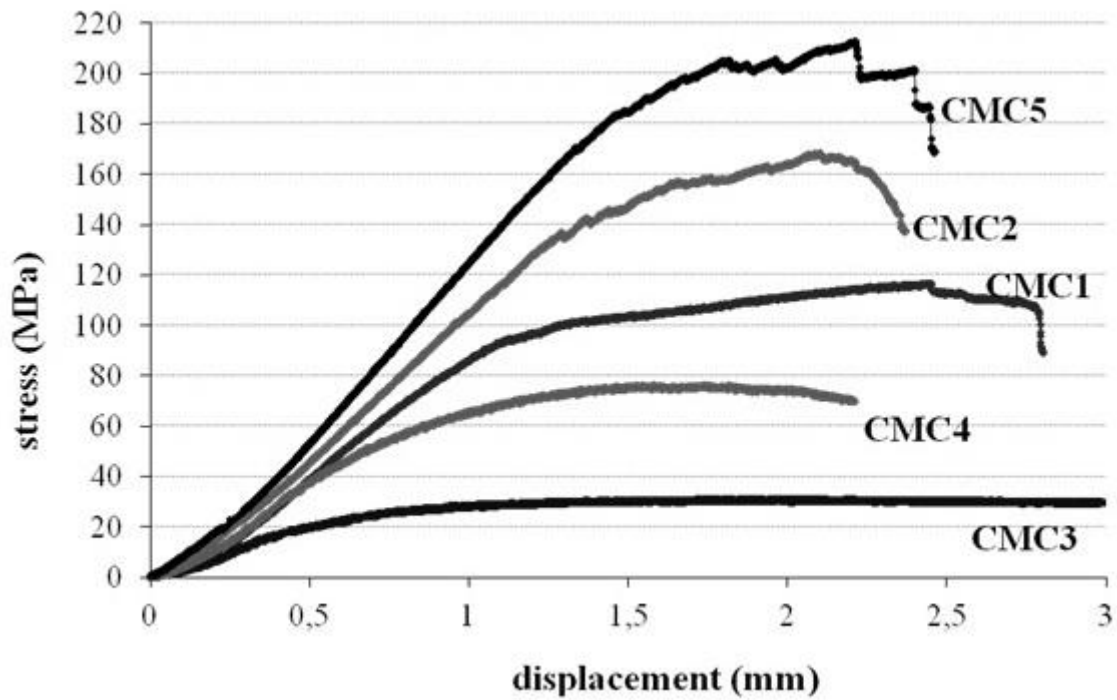
(●)  $\text{TiSi}_2$  ; ( $\Delta$ ) Si ; (■) TiN ; ( $\square$ ) Ti ; ( $\blacktriangle$ )  $\beta\text{-Si}_3\text{N}_4$



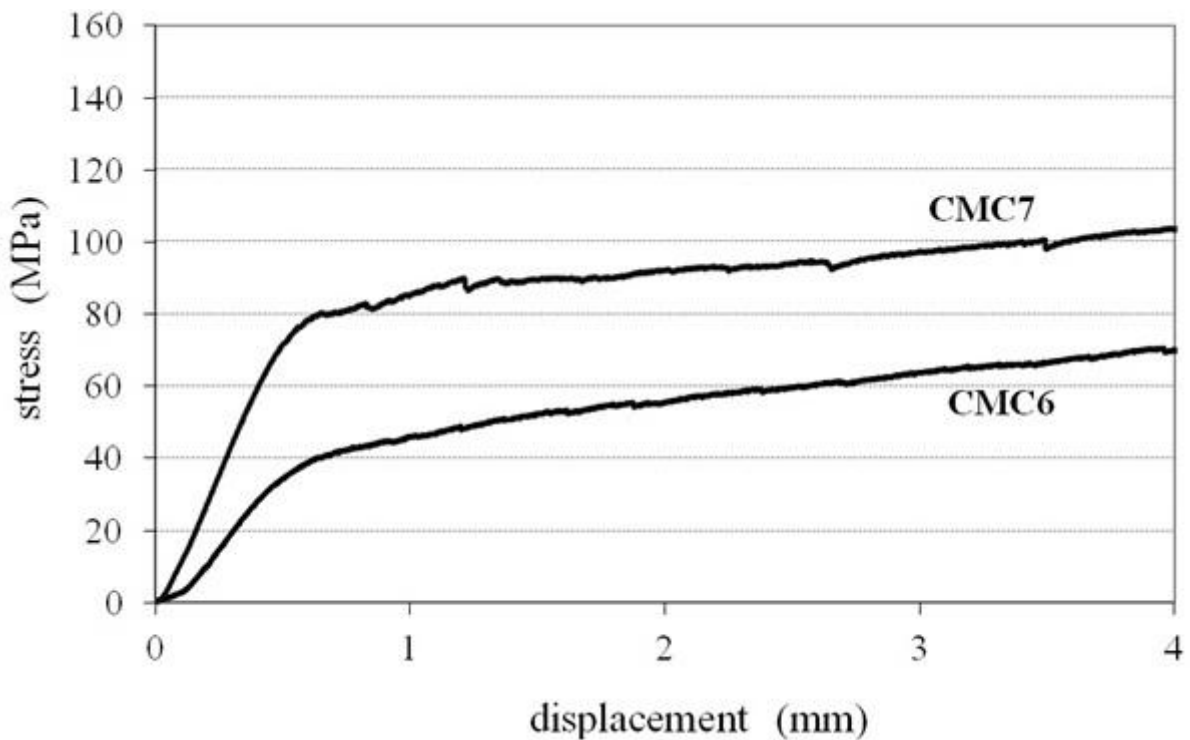
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**Figure 7.** Stress-displacement curve during 3-point bending tests on a Guipex C preform with  $\text{TiSi}_2$  powder (PM) nitrided during 5 h under  $\text{N}_2$  with one PIP cycle of resin 2 at: a)  $1100^\circ\text{C}$  (CMC6), b)  $1300^\circ\text{C}$  (CMC7).

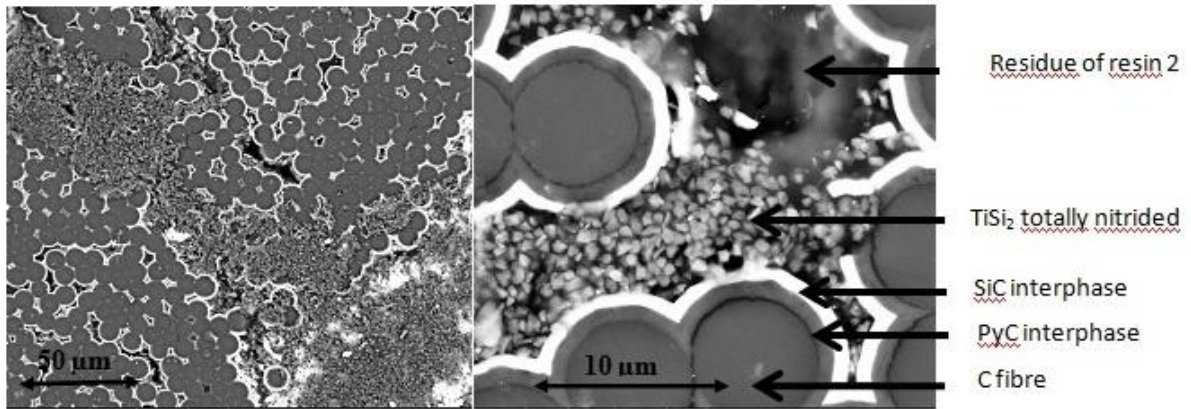


Figure 8. SEM images of cross section of CMC7

Table 1

Ceramic precursor	Composition	Viscosity
Resin 1 for preform manufacture	methylphenylvinylhydrogen polysiloxane resin	900 mPa.s
Resin 2 for re-infiltration	Polymethoxy methylsiloxane / methyl silsesquioxane resin	23-30 mPa.s

Table 2

	raw powder (R) (commercial)	planetary milling (PM)
mill	-	Retsch PM200
operating speed	-	480 rpm
jar	-	50 mL, WC
balls	-	Ø = 3 mm, WC, 30 mL (305 g)
solvent	-	15 mL isopropanol
mass of TiSi <sub>2</sub>	-	18 g
milling time	-	3 h
specific surface area (m <sup>2</sup> /g)	0.3	41
d <sub>50</sub> (µm)	10	0.55

**Table 3**

Sample	Powder	Thermal treatment	Polymer	Porosity (%)	Flexural strength (MPa)
CMC1	TiSi <sub>2</sub> +SiC	5 h, 1100°C, N <sub>2</sub>	Resin 2 1 PIP cycle	16.8	115 (±20)
CMC2	TiSi <sub>2</sub>	5 h, 1100°C, N <sub>2</sub>	Resin 2 1 PIP cycle	15.5	160 (±20)
CMC3	TiSi <sub>2</sub>	without	Resin 2 1 PIP cycle	21.8	35 (±10)
CMC4	TiSi <sub>2</sub>	1 h, 1050°C, N <sub>2</sub>	Resin 2 1 PIP cycle	25.6	77 (±10)
CMC5	TiSi <sub>2</sub>	5 h, 1100°C, N <sub>2</sub>	Resin 2 3 PIP cycles	7.3	215 (±25)