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CORRIGENDUM

Processing of polysiloxane-derived porous ceramics: a review

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Reference numbers after [49] in table 1, table 2, figure 6, figure 7, and the caption of figure 2 should be decreased by 1. The corrected tables and figures are shown below.

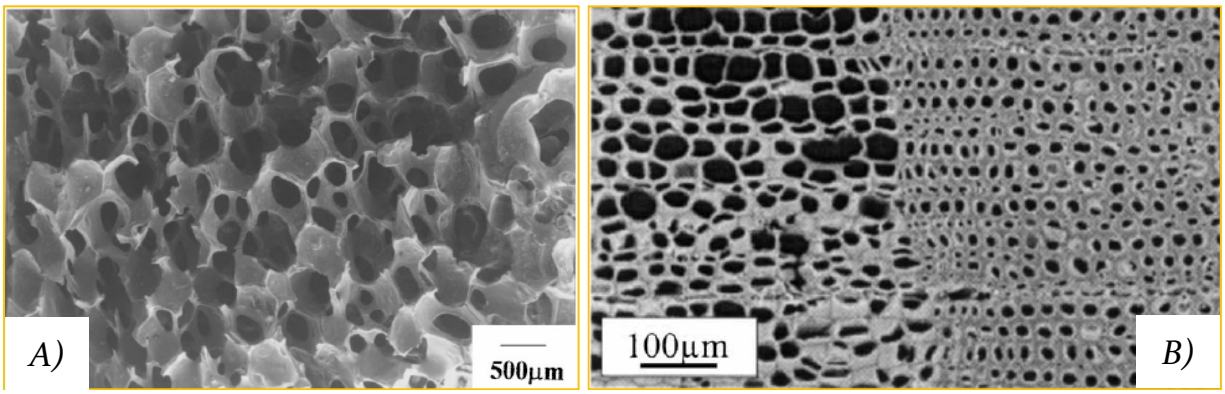

Figure 2. (A) Macroporous cellar structure of SiC ceramics after pyrolysis of polysilane-infiltrated polyurethane (PU) foams (reproduced with permission from [58] © 2000 Springer). (B) The crack-free SiOC-C ceramic structure developed using extracted, maleic acid anhydrate (MA)-modified and polymethylhydrosiloxane (PMHS)-infiltrated pine wood compounds after pyrolysis at 800 °C in nitrogen atmosphere (reproduced with permission from [53] © 2004 Elsevier).

Table 1. The classification of major processing strategies and corresponding compositions of porous ceramics produced from polysiloxane precursors.

Processing strategy	Composition	Remarks	References
I. Replica			
	SiC	Open cells Cell size:> 150 μm Porosity range: 85–96%	[56–60, 62]
	SiC–Si_3N_4		[56, 58, 59]
	SiC–TiC		[56]
	SiOC/C		[53]
II. Sacrificial template			
NaCl compact	SiC	Open cells Cell size: 10–100 μm	[67]
LDPE	SiOC	Open or closed cells Cell density: >10^4 cells cm^{-3} Porosity range: 21–80%	[68, 69]
Expandable or PMMA templates	SiOC	Open, closed or partially interconnected cells Cell size: 0.5–80 μm Cell density: >10^9 cells cm^{-3} Porosity range: 56–88%	[66, 72–75]
	SiC	Porosity range: 32–64%	[18]
Expanded (hollow) templates	SiOC	Closed cells Cell size: > 30 μm. Cell density: >10^9 cells cm^{-3} Porosity range: 70–87%	[65]
III. Direct foaming			
Foaming by chemical agent	SiOC	Open, closed or interconnected cells Cell size: 80–800 μm Porosity range: 75–90%	[6, 77, 80–84, 86, 138]
	SiOC + SiC	Open cells Cell size: 100–700 μm	[81]
Foaming using CO_2			
Batch process	SiOC	Closed cells Cell size: 2–50 μm Cell density: 10^7–10^{12} cells cm^{-3} Porosity: 45%	[78, 89, 91, 95]
	SiC		[90]
Extrusion process	SiOC	Open or closed cells Cell density: >10^7 cells cm^{-3} Porosity range: 27–90%	[92, 93]
IV. Reaction technique			
	SiC	Open cells Cell size: 10–45 μm Cell density: >10^9 cells cm^{-3} Porosity range: 32–94%	[18, 96–101, 103–105]
	Mullite	Partially interconnected open cells Cell size: > 20 μm Cell density: > 10^9 cells cm^{-3} Porosity range: 32–85%	[106–108]
	Cordierite	Interconnected open cells Cell size: 13 μm Cell density: 10^9 cells cm^{-3} Porosity range: 11–75%	[109, 110]

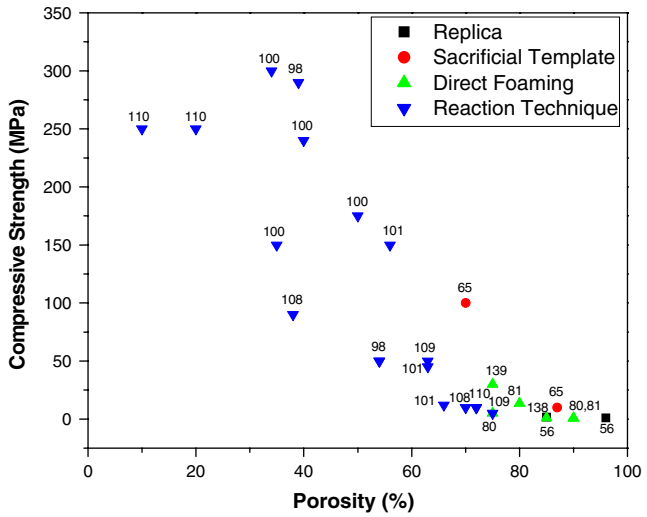

Figure 6. Compressive strength as a function of porosity of polysiloxane-derived porous ceramics produced by different strategies. Data points are labeled with the corresponding reference numbers.

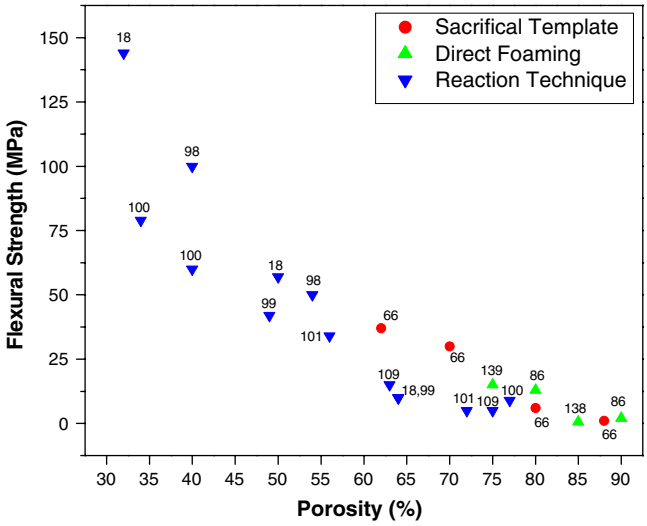

Figure 7. Flexural strength as a function of porosity of polysiloxane-derived porous ceramics produced by different strategies. Data points are labeled with the corresponding reference numbers.

Table 2. List of polysiloxane-derived ceramic compositions produced by different cross-linking methods.

Cross-linking method	Ceramic composition	References
Heat treatment		
	SiOC	[94]
	SiC	[116–118]
	SiC fibers	[14]
	SiC nanoparticles	[119, 120]
	Si-O-C	[121]
Catalysis		
Boron-containing catalyst	SiC	[122–124]
Metallocene	SiC	[125, 126]
Chlorine-containing catalyst	SiC	[127]
Amine catalyst condensation	SiOC	[69, 74, 80, 81, 95]
Laser treatment		
	SiC nanopowders	[128, 129]
Radiation		
	SiC or SiOC	[130–133]