## Supplementary Materials: Crack-Resistance Behavior of an Encapsulated, Healing Agent Embedded Buffer Layer on Self - Healing Thermal Barrier Coatings

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**Table S1.** Particle diameters at 10%, 50%, and 90% of the cumulative mass of (**A**): normal Si, and (**B**) encapsulated Si from Figure 5.

D-values (µm)	d (0.1)	d (0.5)	d (0.9)
Α	2.461	8.600	23.851
В	2.281	8.543	24.760





**Figure S1.** EDS mapping analysis around the healing agents in as-coated samples from Figure 6(C-1).



Position	Si Wt% (at%)	O Wt% (at%)	Components
а	100 (100)	0 (0)	Si
b	98.44 (97.30)	1.56 (2.70)	Si
с	35.56 (23.91)	64.44 (76.09)	SiO <sub>2</sub>



Figure S2. EDS point-analysis around the healing agents in as-coated samples from Figure 7A,B.



Position	Si Wt% (at%)	Zr Wt% (at%)	O Wt% (at%)	Components
а	48.70 (38.52)	7.90 (1.92)	42.79 (59.41)	SiO <sub>x</sub>
b	20.68 (21.82)	40.87 (13.28)	34.29 (63.51)	ZrSiO <sub>4</sub> (Si-rich)
с	0 (0)	68.39 (31.49)	24.88 (65.31)	YSZ



**Figure S3.** EDS point- and mapping analysis around the healing agents after heat treatment from the magnified image in Figure 10C.



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