

## Supporting Information

### Microstructures, thermophysical properties and thermal cycling behavior of $\text{LaZnAl}_{11}\text{O}_{19}$ thermal barrier coatings deposited by atmospheric plasma spraying

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**Table S1** The thicknesses of bond coat and ceramic coat in TBCs

TBCs	Thickness of bond coat (um)	Thickness of LZA coating (um)	Thickness of YSZ coating (um)
LZA TBC	~146	~249	–
LZA/YSZ TBC	~140	~154	~210

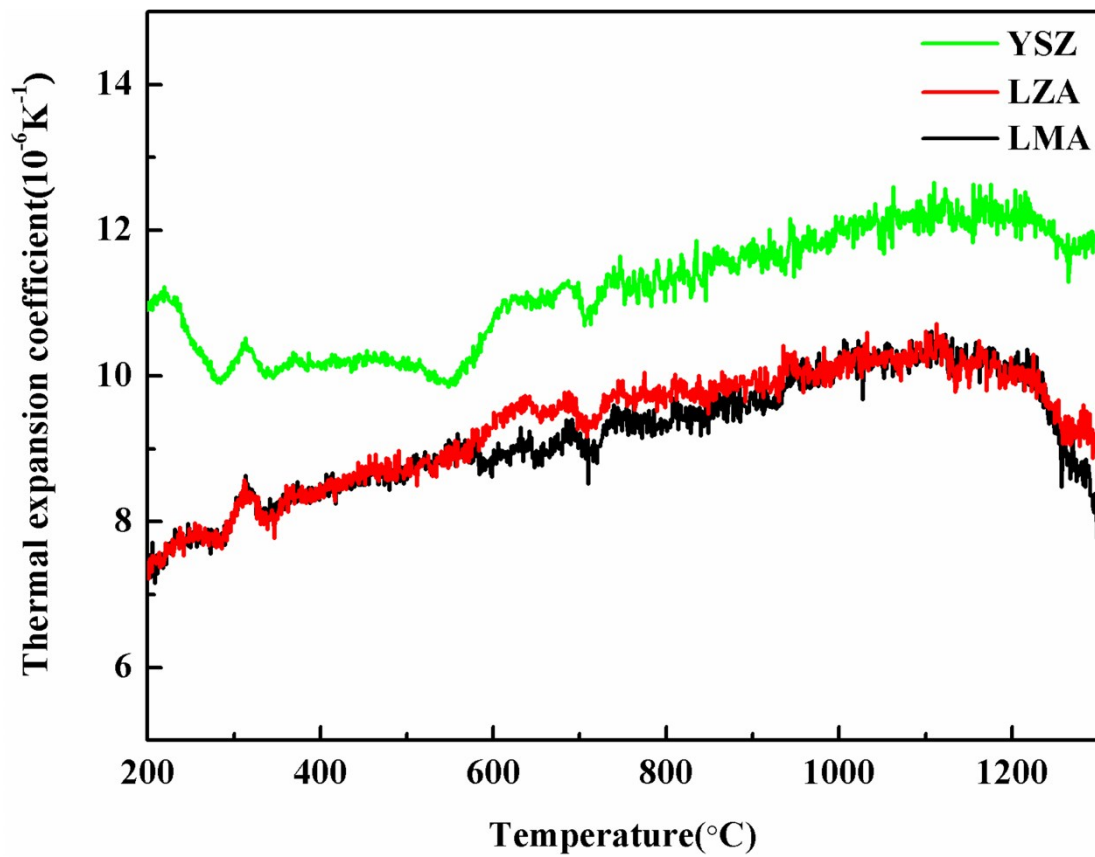


Fig. S1. The thermal expansion coefficients of bulk YSZ, LZA and LMA.

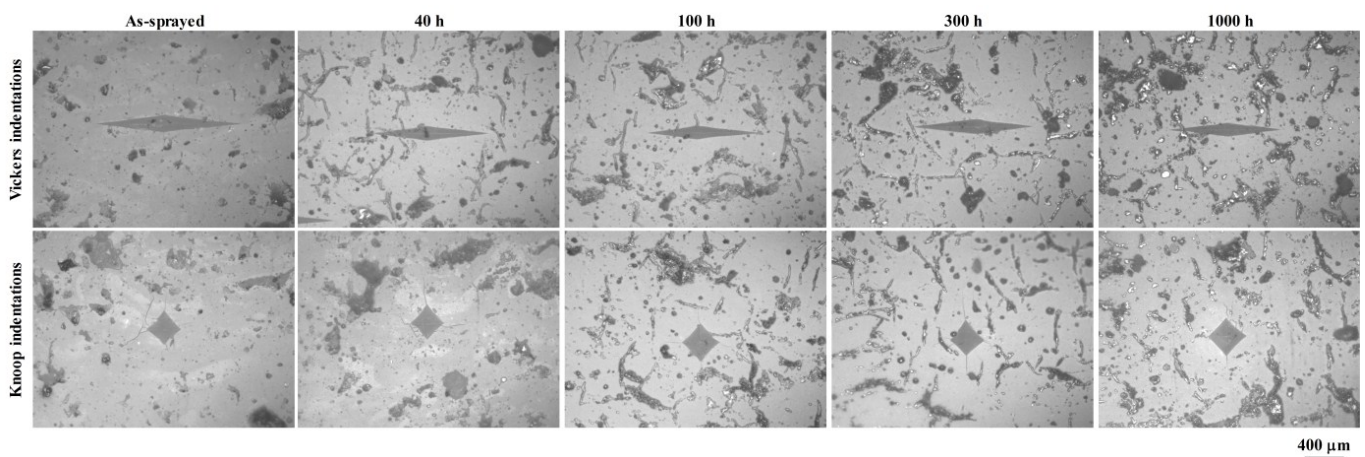


Fig. S2. The representative photos of Vickers and Knoop indentations in the LZA coating: (a) Vickers indentation; (b) Knoop indentation.

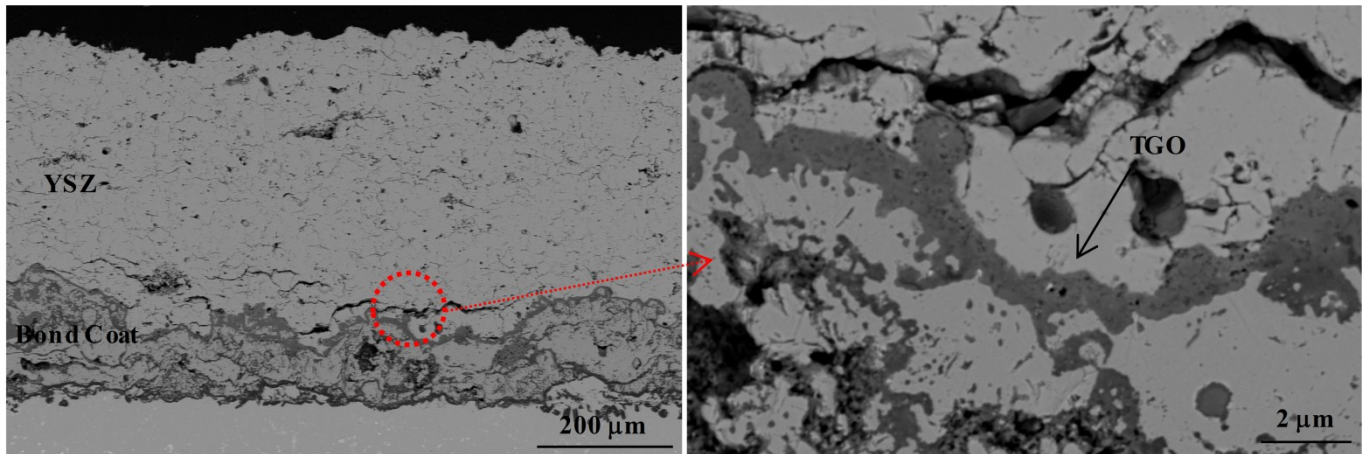


Fig. S3. The SEM images of the failed YSZ TBCs.