

A STUDY OF THE OF YTTERBIUM DISILICATES UNDERGOING WATER VAPOUR CORROSION FOR ENVIRONMENTAL BARRIER COATING APPLICATIONS

Simon McCormack, The University of Manchester, Department of Materials, Henry Royce Institute, UK
Philip J. Withers, The University of Manchester, Department of Materials, Henry Royce Institute, UK
Ping Xiao, The University of Manchester, Department of Materials, Henry Royce Institute, UK

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Water vapour corrosion behaviour of ytterbium disilicate ($\text{Yb}_2\text{Si}_2\text{O}_7$) compacts and coatings were examined at 1350°C in isothermal conditions. Scanning electron microscopy (SEM) was used to investigate the mechanisms of phase transformation, oxidation and reaction during exposure. X-ray diffraction (XRD) was used to identify the phase composition of the water vapour corrosion products. The water vapour corrosion tests were used to understand key factors in the mechanism of phase transformation in steam environment and these results can help develop more effective $\text{Yb}_2\text{Si}_2\text{O}_7$ environmental barrier coating for SiC ceramics.