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**Abstract**

The high-temperature (1500 °C) interactions of two promising dense, polycrystalline EBC ceramics,  $\beta$ -Yb<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> and  $\beta$ -Sc<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>, with a calcia-magnesia-aluminosilicate (CMAS) glass have been explored as part of a model study. Unlike YAlO<sub>3</sub> and  $\gamma$ -Y<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> in the accompanying Part I paper, little or no reaction is found between the Y-free EBC ceramics and the CMAS. In the case of  $\beta$ -Yb<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>, a small amount of reaction-crystallization product Yb-Ca-Si apatite solid solution (ss) forms, whereas none is detected in the case of  $\beta$ -Sc<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>. The

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