

Editorial

The following papers are a selection from those presented at a symposium entitled “Corrosion of Ceramics” during the International Congress Materials Week 2001, which was held in Munich (Germany) from 1 to 4 October 2001.

The symposium has sessions in strongly differing directions. One was related to the ongoing quest for the development of high temperature structural materials as monoliths and composites, the other was devoted to the interaction with liquid media at temperatures below 300 °C.

One lecture dealt with advanced ceramics for potential future applications at the extreme temperatures and conditions of the gas turbine, which demonstrated the progress at the high temperature frontier. A good long-time stability of sintered Si₃N₄ ceramics at 1500 °C in oxygen was hardly anticipated a few years ago. Other lectures evaluated the pitfalls and possibilities of composite microstructure in respect to their corrosion behaviour.

Four lectures and some posters were devoted to the corrosion by aqueous media. Perhaps this reflects a new trend to concentrate more on the investigation of the problems of down-to-earth applications, where the classic advantages of ceramics such as hardness, wear

and corrosion resistance are the prime motivation for their use.

In the struggle for ever increasing high temperature properties, it was often believed that advanced ceramics should be invulnerable to the attack of aqueous media other than those containing fluoric acid. The actual mechanisms and kinetics, and the consequences of the corrosion by such media, were addressed. It became clear that it is possible to tailor the microstructure for resistance against acids or caustics.

Aqueous media at temperatures above 100 °C at higher pressures are the frontiers of application in chemical or energy related plants and there are indeed very few structural materials resisting the attack of superheated acids or caustics. Advanced ceramics will dominate this market.

In this way, the symposium successfully showed off the progress in the field.

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