

**MANUFACTURING OF POROUS HOLLOW
SPHERICAL STRUCTURES OF NANOSIZED YSZ
AND HIGH TEMPERATURE CONDUCTIVE
CERAMIC OXIDES.**

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Primary morphology in the Altair Industrial process is a hollow sphere. It provides the powder up to 95% porosity. Primary particles organized in the hollow sphere structure can be grown to variety of sizes, from several nanometers to several microns. When the powder is pressed and calcined, the void space is somewhat reduced, however, it is still possible to maintain porosities between 50 and 75%. In addition to porosity, the wafers have reasonably good mechanical properties.

Porosity is substantial for good gas flow inside the SOFC electrodes. Altair made several chemical compositions of high temperature conductive oxides and YSZ in the past.

Figure 1. Nanoparticles of Zirconia organized in a thin film with hollow sphere morphology.

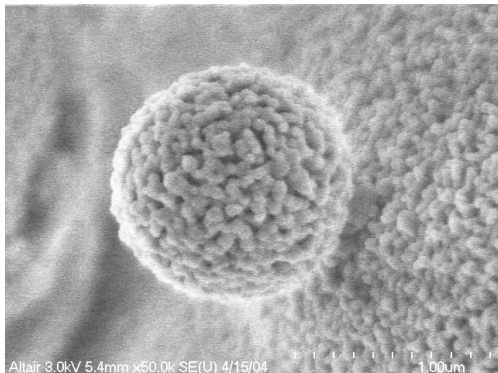


Figure 2. Pressed and calcined powder of TiO₂ made a wafer with about 70% porosity.

