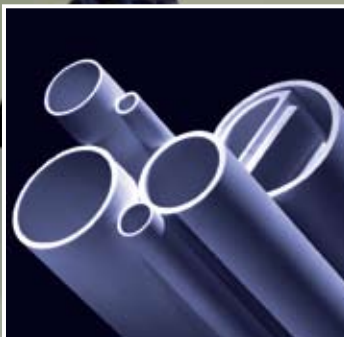


COORSTEK
Amazing Solutions.®



ELECTROLYTE COATED
ANODE-SUPPORTED HALF CELLS
FOR SOFC SYSTEMS

LOW-COST CERAMIC PLANAR AND TUBULAR HALF CELLS

CoorsTek recognizes one of the most challenging aspects of commercialization in the Solid Oxide Fuel Cell (SOFC) market is low-cost, high-volume production of coated anode support components. Commercial success will be most economically viable at gigawatt scale production volumes. CoorsTek is positioned to support the growing ceramic component demand for those companies participating at market-scale volumes at reasonable cost targets.

PRODUCT & MATERIAL OFFERINGS

CoorsTek is the largest technical ceramics manufacturer in North America and designs and develops its own high-performance materials.

- Porous Nickel Yttria Reaction Sintered Zirconia (NiYRSZ) anode supports with electrolyte coating
- Planar or tubular design configurations
- Porous plate thickness and tube walls as thin as 500 microns
- Dense electrolyte coatings

THE COORST^{TEK} ADVANTAGE

Advanced Materials

- Highly porous material
- Highly conductive anodes
- Hermetic electrolyte coatings
- Well-sintered zirconia grain boundaries
- High-strength material

Best-Practice Manufacturing

- Low-cost material production
- High-volume manufacturing
- Rapid scale-up to production
- Engineering & scientific support
- Analytical testing laboratory

MANUFACTURING PROCESSES

Planar Anode Supports

- Roll compaction
- Tape casting
- Dry pressing

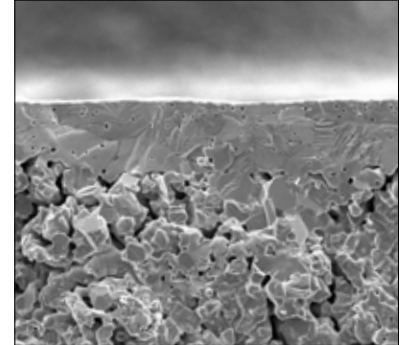
Tubular Anode Supports

- Extrusion of round single bore tubes
- Slip casting of closed one end tubes
- Injection molding of intricate shapes

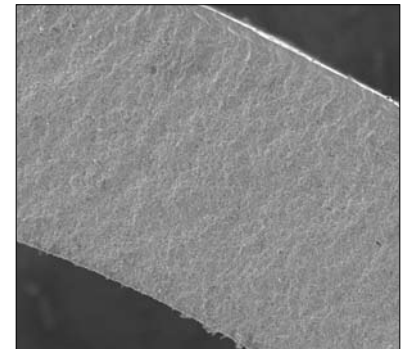
ORDER WITH ASSURANCE...

CoorsTek manufactures only the **ceramic components** used in fuel cell systems and carefully protects each customer's intellectual property and designs.

For technical ceramic expertise regarding half cells or other custom components, contact us today at **+1.888.432.3557** or e-mail us at **fuelcells@coorstek.com**.



NiYRSZ Planar Half Cell
Reduced (x1000)



NiYRSZ Tubular Half Cell
Coated with 8YSZ (x100)

| | |
|-----------------------|---|
| Anode thickness | Down to 500 μ m |
| Electrolyte thickness | 10 μ m-20 μ m |
| Reduced porosity | 35%-40% |
| Reduced pore size | 1 μ m-2 μ m |
| Reduced strength | 100 MPa |
| Conductivity | >500 $\Omega^{-1} \cdot \text{cm}^{-1}$ |

