Zircar Zirconia, Inc. Supplies High Temperature Insulation for Solar Thermochemical Fuel Production Reactor

Zircar Zirconia, Inc., a global leader in high temperature insulation products, received multiple orders in late December,2012 from the University of Florida's(UF) Solar Fuel Team to supply custom machined, high temperature insulation reactor components.

Zircar Zirconia Inc. shipped today 4 custom sets of alumina insulation boards that will manage the solar energy supplied by a high flux solar simulator for high temperature solar thermochemical research. The 50 kWe high flux solar simulator consisting of an array of Xe-arc lamps, each coupled to an ellipsoidal mirror designed for the UF Solar Energy Engineering Laboratory. The UF high flux solar simulator serves as an experimental platform for solar thermal and solar thermochemical research.

Zircar Zirconia alumina fiber boards excel at solving thermal management problems by providing rigid, machinable refractory materials for rapid proto-typing that outperform conventional alumina-silicate fiber boards.

"This project strengthens our global position in the solar energy market," said David Hoskins, sales manager at Zircar Zirconia, Inc.. "It is a typical example of Zircar Zirconia drawing on its leading technical expertise in high temperature insulation to provide customized solutions with a fast turnaround that facilitate our customers technological growth." Zircar has supplied custom machined, high temperature insulation components to both international and domestic university and national lab solar researchers since the 1990's and its experience in supplying customized components with a short lead time was critical in winning this contract.

This project is DOE Advanced Research Projects Agency-Energy (ARPA-E) funded for the production of synthetic fuel that can harvest and store the sun's energy in chemical form via high temperature thermochemical conversion of carbon dioxide (CO_2) and water to fuel--allowing solar energy to be easily transported and stored. The University of Florida is developing a windowless high-temperature chemical reactor that converts concentrated solar thermal energy to syngas, which can be used to produce gasoline. The overarching project goal is lowering the cost of the solar thermochemical production of syngas for clean and synthetic hydrocarbon fuels like petroleum. The team will develop processes that rely on water and recycled CO_2 as the sole feed-stock, and concentrated solar radiation as the sole energy source, to power the reactor to produce fuel efficiently. Successful large-scale deployment of this solar thermochemical fuel production could substantially improve our national and economic security by replacing imported oil with domestically produced solar fuels.