Technology Transfer

Success Story

Pyrochem Catalysts for Diesel Fuel Reforming

Converting heavy hydrocarbons, such as diesel and coal-based fuels, into hydrogen-rich synthesis gas is a necessary step for fuel cells and other applications. The high sulfur and aromatic content of these fuels poses a major technical challenge since these components can deactivate reforming catalysts. Taking on this challenge, NETL researchers invented a novel fuel-reforming catalyst that overcomes limitations of current catalysts by efficiently reforming diesel fuel while maintaining thermal stability and resistance to sulfur, aromatics, and carbon formation.

This catalyst technology was exclusively licensed to start-up company Pyrochem Catalyst Corporation in 2011. Established with financial support from Pittsburgh-based Innovation Works, Pyrochem Catalyst intends to conduct its research and development activities in southwestern Pennsylvania. It is hoped that the successful commercialization of the catalyst will lead to the creation of high-technology jobs in the region. This agreement marks the first time that an NETL-licensed technology has been used as a basis for the creation of a start-up company.

Developing stable catalysts to convert diesel fuel to pure hydrogen is an important advance in the implementation of fuel cells in areas such as stationary power generation and transportation. The ability to produce hydrogen at the diesel source point will allow for more efficient and economical generation of hydrogen and lead to greater adoption of fuel cell technology.

The use of pyrochlore catalysts, in conjunction with hydrogen-based fuel cell auxiliary power systems, will reduce the economic and environmental costs of diesel engine idling. Significant monetary savings will be realized through decreased fuel consumption and extended engine life. Environmentally, reduced diesel usage will result in lower emissions of oxides and particulate matter.

This technology was the recipient of a 2011 Federal Laboratory Consortium award for "Excellence in Technology Transfer".

Contact **NETL Technology Transfer**
techtransfer@netl.doe.gov

1450 Queen Avenue SW
Albany, OR 97321-2198
541-967-5892

3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880
304-285-4764

626 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236-0940
412-386-4687

For more information:
Jessica Sosenko
Technology Transfer Manager
jessica.sosenko@netl.doe.gov
412-386-7417

Visit the NETL website at:
www.netl.doe.gov

Customer Service:
1-800-553-7681

BDO13–008g, MAY 2014