

Technology Licensing Opportunity

Non-Confidential Summary



Industry
Liaison
Office

PROMOTED IRON CATALYSTS SUPPORTED ON PELLETIZED CARBON NANOTUBES FOR FISCHER-TROPSCH SYNTHESIS

ROI # 11-012

Opportunity:

Researchers at the University of Saskatchewan have developed a process for the preparation and use of novel, high surface area, promoted iron catalysts supported on multi-walled carbon nanotubes in a fixed-bed Fischer-Tropsch (FT) process.

Background:

By the end of 2015, Europe and North America are expected to have approximately a 30% to 60% share in second-generation biofuel production. Cellulosic biofuel production has key conversion technologies, and their technological development is crucial in producing cost-competitive second-generation biofuels. The FT conversion process uses chemical reactions to convert synthesis gas ($\text{CO} + \text{H}_2$) into liquid hydrocarbons. The FT process requires energy and high capital costs, however, fuel produced by FT process can reach 150% of gasoline selling price.

Development of methods which can significantly reduce the cost of FT process is important for the biofuel industry. Availability and use of efficient low cost iron based catalyst systems can result in cost effective production of synthetic fuels in both lab scale and industrial facilities.

Invention benefits:

The invented catalyst can result in the following improvements compared to commercial catalysts:

- At least 10 % reduction in reactor size and corresponding capital costs
- At least 5% reduction in capital and operating costs of gas treatment and CO_2 removal
- At least 10% reduction in capital and operating costs of syngas production

Technology Licensing Opportunity

Non-Confidential Summary



Industry
Liaison
Office

PROMOTED IRON CATALYSTS SUPPORTED ON PELLETIZED CARBON NANOTUBES FOR FISCHER-TROPSCH SYNTHESIS

ROI # 11-012

Researcher profiles:



Professor Ajay Dalai's research areas include environmental catalysis such as alkylates from butane using solid acids and conversion of sulphur containing compounds from gases and waste water and other streams; chemical process and product development; upgrading and hydro-treating of hydrocarbon fluids; renewable energy such as hydrogen and bio-diesel from bio-mass and bio-oils; glycerol conversion to value-added chemicals; production and applications of activated carbon for mercury removal from flue gases; production of carbon nanotubes, and their catalytic applications.

Patent Status:

US patent application # 13/667333 was filed on November 2, 2012 and Canadian patent application # 2757012 was filed on November 3, 2012.

Publications:

Iron catalyst supported on carbon nanotubes for Fischer–Tropsch synthesis: Effects of Mo promotion; Fuel, vol. 90, no. 3, pp. 1139-1144, 2011.

Development Stage:

Product is ready for licensing to a commercial partner.

For more information, please contact:

Oksana Akhova, PhD, MBA
Tel. 306 966 5496
Email: oksana.akhova@usask.ca

Industry Liaison Office
15 Innovation Boulevard, Suite 250
Saskatoon, SK, S7N 2X8
T. (306) 966-1465 E. ilo.ovpr@usask.ca