Gas-to-liquids technology has significant advantages over crude oil in producing higher quality fuel and being more environmentally-friendly. With crude oil prices going up and a surplus of natural gas reserves, there is a passageway for GTL to grow. However, a decrease in crude oil prices has little to no adverse effect on GTL which makes it economically risky to invest. Overall, the question lies in whether the benefits of GTL is worth the economic risks needed to improve the technology and bring it to a large-scale. Not only that but also, can GTL sustain and turn into a reliable supplier of world’s energy needs. There are no clear cut answers but in this era where technology is skyrocketing and natural gas is so readily available, there is definitely a way for GTL to reach its potential.

Test Methods for GTL

ASTM D445- Kinematic Viscosity of Transparent and Opaque Liquids

This test method is used to determine the kinematic viscosity of liquid petroleum by using a viscometer to measure the time for the volume of liquid to drop due to gravity.

ASTM D381- Existant Gums in Fuels by Jet Evaporation

This test method is used to determine the gum or residue in liquid fuel through evaporation. Sample is evaporated in an aluminum block at high temperatures, max at 475 °F, under controlled conditions.

ASTM D4294- Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectroscopy

This test method is used to determine the total sulfur in petroleum and petroleum products by exciting the sample through x-ray radiation. High sulfur content lowers the quality of the fuel product.

ASTM D615- Cetane Number of Diesel Fuel Oil

This test method is used to determine the cetane number which measures the ignition characteristics of fuel. Near-infrared (NIR) transmission spectroscopy is done to achieve results.

ASTM D1319- Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption

This test method is used to determine the hydrocarbon percentage of saturates, olefins, and aromatics to characterize the quality of the product. Maximum of six samples can be tested simultaneously distilled below 315 °C.

ASTM D524- Rambottom Carbon Residue of Petroleum Products.

This test method is used to determine carbon residue value of burner fuel after evaporation and pyrolysis of the oil. The deposit formed will be measured.

References


Acknowledgments

Koehler Instrument Company Inc., 85 Corporate Drive, Holtsville, NY 11742 631-589-3800
Raj Shah; rsah@koehlerinstrument.com
Anson Law; anson.law@storybrook.edu