

Production of liquid fuels from biomass derived syngas By Fischer-Tropsch synthesis

S.Tungkamania¹, P.Narataruksaa¹, H.Sukkathanyawata¹ and S. Nivitchanyongb²

¹King Mongkut's Institute of Technology North Bangkok, Bangkok, Thailand

²National Metal and Materials Technology Center (MTEC),

National Science and Technology Development Agency (NSTDA),

114 Thailand Science Park, Paholyothin Road, Klong 1, Klong Luang,

Patumthani, Thailand

Abstract

The fluctuation of crude oil prices is presently reaching a crisis. The real cause of this problem is derived from the fact that petroleum resource is continuously depleted and cannot meet the demand. A renewable energy based on biomass has become the most attractive resource in Thailand. This could sustain the energy adequacy and economy stabilization at the same time. Utilization of biomass using direct or indirect method can produce gaseous, liquid and solid fuel. This resource could offer feasible alternative for substitution of fossil energy. Although indirect liquefactions of biomass via Fischer-Tropsch synthesis is extremely interesting because syngas derived from biomass can produce liquid transportation fuel such as gasoline (C5-C12) and diesel (C12-C20), but the program is not popular in commercial view according to the high cost of the technology. However, this problem could be overcome by the development of Fischer-Tropsch catalysts and the system configurations that served the long-term with large scale production. This project is aimed to exploring the feasibility of producing synthetic liquid fuel from bio-syngas via Fischer-Tropsch synthesis and development and improvement of Fischer-Tropsch catalysts