**Catalytic dehydration of methanol to dimethyl ether (DME): Process for the catalytic dehydration of methanol to DME**

With the increasing population, India’s demand in energy and fuel sector is increasing day by day. According to a report published by the economic times, India's fuel consumption jumped 23.8% in May from a year earlier. This is an alarming situation for us. As India depends on other countries mainly for crude oil and other fuels, we need to search some alternative options for it. DME (Dimethyl ether) can be an alternative for energy demands of our nation in upcoming future. World recognized DME as an alternative fuel from last few decades. Countries like US, Russia and China already developed automobile engines for using DME as a fuel. Recently, in India new researches for alternate fuels are going on. CSIR- NCL developed a pilot plant for production of DME under Mission Mode project with the capacity of 100 L per day. As this DME can easily blend with LPG and CNG as well, various trial and utilization are been spotted and our team is working on it. DME is moreover similar to LPG therefore handling and hazards are almost same. Automobile trials are being done with ARAI, Pune. For domestic purpose, Aditi Urja Sanch is developed by team and its intellectuals are protected with us. This Project started back in 2018, since then team had several MOUs and NDAs with government and non government firms. During this tenure we developed a complete process for methanol dehydration to DME along with development of domestic and industrial furnace. Technology is already at TRL 06-07. DME is said to be a promising fuel as its combustion gives no SOx and low NOX emissions. This DME can meet all the energy demands of armed forces even in rare conditions like Siachen border region. With commercialization we can reduce our dependency on other nations for fuels; it has great impact on environment also due to low emissions. Even it can boost our methanol economy by adding methanol into main stream as methanol will be a starting material for the reaction. PM Ujwala yojana a scheme to enlighten every house with LPG burner will add extra load on LPG imports which can be compensated by DME blending.

