

**DME Fuel Plant to produce Clean Fuel That Can  
Replace Diesel and blend with LPG.**

Dimethyl ether (DME) is a globally approved alternative ultra-clean fuel to diesel as well as Liquefied Petroleum Gas (LPG). It performs better than other known commercialized processes at laboratory scale level. The process of DME is cost effective as compared to other available processes. DME (molecular formula is  $\text{CH}_3\text{-O-CH}_3$ ) is an oxygen containing fuel which emits less particulate matter. It also greatly reduces  $\text{NO}_x$  (nitrogen oxides) and does not emit  $\text{SO}_x$  (Sulphur Oxides).

As a national concern, use of DME should be considered as it has numerous advantages. One disadvantage is that it is also difficult to transport because of its gaseous state which requires cryogenic temperature and high pressure conditions. For transporting or importing DME it will first have to be converted into liquid state from gaseous state. This requires cryogenic temperature and high pressure conditions. To avoid transportation, several plants must be established in different locations. Methanol plants can shift to make DME because DME is better fuel with better market potential than methanol.

Dr T. Raja, Principal Scientist, CSIR-NCL has proposed DME production as a solution to India's prevalent air-pollution problem. His contribution could also be termed as green fuel to the nation. In order to minimize the effect of LPG supply crunch in India and to significantly reduce LPG imports, DME pilot plant under the mission mode project 'Catalysis for Sustainable Development' has been set up at CSIR- NCL, Pune. CSIR- NCL has developed indigenous process technology for the production of DME from methanol dehydration. Production of DME will greatly boost INDIA's methanol economy thereby replacing fossil fuels as means of energy production. NCL's plant is designed to make 100% pure DME in the laboratory. It possesses the capacity to produce 1 kg DME per hour.

DME can also be used as a non-fossil additive to the liquefied petroleum gas (LPG) used for domestic cooking. The main objective is to mix DME with LPG so that DME can be transported to individual homes and it can also be used as solvent and as a gas in refrigeration, air conditioners or aerosols.

The DME project is aimed at helping in the Prime Minister's Ujjwala Yojana scheme which provides cooking gas to the marginalized, by reducing import of LPG. Results have showed that DME can be blended with LPG up to maximum of 20%.



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