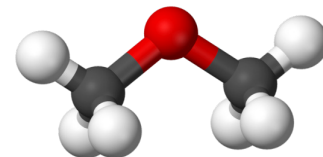


## DME: AN EMERGING GLOBAL FUEL

### WHAT IS DME?

DME, or dimethyl ether ( $\text{CH}_3\text{OCH}_3$ ), is a clean, colorless gas that is easy to liquefy and transport, and is made from a variety of renewable materials or fossil fuels. Physically similar to liquefied petroleum gas (LPG), DME is synthesized from methanol, whether produced from coal, natural gas or biomass. DME is a safe and non-toxic fuel, suitable for use in diesel engines that burns cleanly without producing soot. Similar to propane, DME is handled as a low-pressure liquid that can be easily shipped and stored. The global dimethyl ether market size in terms of volume was estimated to be 3,740.46 KT in 2014



### WHAT ARE THE USES OF DME?

Current primary applications are as propane supplement in cooking gas, aerosol spray-can propellant, solvent and chemical feedstock. Developing markets include exploring DME as a transportation fuel, as well as a potential for DME in electric power generation. DME production capacity has been growing very rapidly during the last few years as it has been introduced as a propane supplement in bottled cooking gas, primarily in China. DME vehicles are also on the rise. Auto manufacturers Shanghai Diesel Co, AB Volvo, Isuzu Trucks, and Nissan Diesel are actively developing DME fueled heavy duty vehicles.



Requirements for modifications to the fuel distribution infrastructure and vehicle engine parts to accommodate the use of DME will influence the market introduction from bus and truck fleets to passenger diesel cars.

### WHAT IS THE GLOBAL OUTLOOK FOR DME?

World production of DME today stands at approximately 5 million tons per annum, and is primarily by means of methanol dehydration. The majority of global DME production is currently in China. Japan, Korea and Brazil have significant new production facilities, and major new capacity additions are planned or under construction in Egypt, India, Indonesia, Iran and Uzbekistan. China's National Development and Reform Commission is calling for 20 million tons of DME production capacity by 2020. South Korea is studying all aspects of commercializing DME as a potential alternative energy source for the 21st century. In Sweden, Chemrec uses black liquor gasification, a waste stream from the pulping process, to produce BioDME. This synthetic second generation biofuel offers a very high reduction of carbon dioxide emissions compared to conventional diesel fuel. In 2013, the BioDME project was successfully concluded with hundreds of tons of advanced biofuel produced and the test fleet accumulated more than 600,000 miles in commercial operation. With the EU is considering a potential biofuel mix for 2030, the market for BioDME is expected to increase dramatically. The growing global production capacity for DME and BioDME means expanding and dynamic markets for methanol.



#### Current Applications

- Aerosol spray-can propellant
- Chemical Feedstock
- Propane replacement in cooking gas
- Solvent

#### Developing Markets

- Transportation Fuel
- Electric Power Generation

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