

## Produksi DME dari natural gas melalui syngas = Dimethyl ether production from natural gas through synthesis Gas

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20385670&lokasi=lokal>

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### Abstrak

This study is to verify the usage of DME as an alternative fuel and its production routs. As it is clear the energy, its supply and consumption is a very important concern. Countries are developing and as a result of that the energy consumption is increasing. Growing energy consumption is directly related to the depletion of fossil fuels particularly petroleum based fuels. So the world has to think of using other fuels which have at least the same performance and its production is cost-effective. One of these fuels is Dimethyl ether (DME).

DME is very promising fuel and research on its characteristics and efficiencies show that it can be considered as a future fuel as it is cheap, environmental friendly and has good efficiency. Another advantage of DME production is that it has different applications and is a versatile fuel. Furthermore, similarity of its physical properties to LPG makes DME handling, storing and transportation easy however DME has low viscosity and lubricity. These mentioned disadvantages which are solvable may cause problems if enough attention is not paid to them.

Typically DME is produced from natural gas as a feedstock although coal and biomass are also other possible feedstock to be utilized. To produce DME, natural gas is first converted to synthesis gas via ATR method (Auto thermal reforming) and then is converted to DME through direct method. This research aimed to be done to investigate about the possibility of using DME as a future fuel by discussing about its characteristics, advantages and disadvantages. Moreover, its various production pathways has been talked about and tried to compare them in different aspects.