

**Abstract**  
**Process Economics Program Report 43C**  
**METHANOL**  
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Following a period of high demand during the mid-1990s, methanol is currently in over-supply. The earlier demand was primarily driven by the growing acceptance of a major methanol derivative in reformulated gasoline—methyl tertiary-butyl ether (MTBE). The maturity of this market coupled with the growing political controversy over the environmental acceptability of MTBE is a factor in the reduced demand.

Despite this falloff in demand and relatively depressed price levels, producers continue to announce plans for major new production facilities in regions containing large reserves of low-cost natural gas. Advances in oxygen-blown natural gas reforming technologies are not only resulting in the more efficient use of natural gas feedstock for stand-alone methanol production in remote locations, but are also permitting extraordinary increases in single-train production capacities. This improved production efficiency coupled with mega-plant economies of scale and the relative ease of transport may reduce the delivered cost of methanol sufficiently to be competitive with conventional fuels in certain applications. A vast new market for low-cost fuel-grade methanol appears to be imminent, possibly along with new markets as a feedstock for olefins and gasoline production.

The focus of this report is a comparative evaluation of three leading methanol production technologies based on the oxygen-blown two-stage reforming of natural gas. The scope of the report includes production of fuel-grade as well as chemical-grade methanol, delivered costs relative to other fuels, and cost projections for mega-methanol plants with production capacities up to 10,000 t/d. We also briefly discuss other promising methanol production technologies that appear to be near commercialization. A brief update on recent breakthroughs in fuel cell technologies, another promising mass market for methanol, is also provided.

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