

# INSIGHTS ABOUT GASTECHNO™

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"My next visitor was a fellow with a fascinating business history that could quite literally fill a book. Right now, though, Walter Breidenstein is deep into alternative and sustainable energy technologies with a company called GasTechno. Basically, the company has five sets of patents pending for technology that can turn methane gas into liquid methanol in a single step, much more efficiently than the two-step current state of the art. The technology was compiled from the existing state of the art by a chemical engineer from Michigan Technological University. Breidenstein needs \$2.5 million to build a pilot plant -- a mobile, skid-mounted unit that could be transported to any location. He's already raised \$1.15 million but is seeking the rest. Methanol is used as a racing fuel, in the making of formaldehyde, which is used mostly in the building trades, and is also used to power a type of fuel cells. Breidenstein is also still pushing a sustainable, 120-home, zero-net-energy development in the Boyne Falls area. But it's controversial because it involves wind turbines, and northern Michigan is abuzz with local opposition to large wind turbines these days. (The fact that the turbines for Breidenstein's development would be 120 feet tall, rather than the 400-foot monsters in other area proposals, doesn't seem to matter.) More about Breidenstein's ethanol work at [www.gastechno.com](http://www.gastechno.com). (And if you contact him, maybe he'll tell you about his globetrotting days as an oil industry equipment consultant, or the time he spent bartering oil products for food directly between Russia and Western Europe.)"



Matt Roush  
WWJ 950 News Radio Interview  
Great Lakes IT Report  
May 9, 2006

"The only chemical technology for converting natural gas to usable chemical feedstocks is the Fischer-Tropsch (FT) family of processes. These are two-step chemical processes for the production of hydrocarbons and oxygenates such as methanol. FT technology is a complex, expensive and energy intensive method that is only suitable for very large scale processing... I have recently become involved with the Gastecho process, and have become familiar with all aspects of the design... This Gastecho process has considerable advantages over F-T technology. It requires only one chemical reaction step, not two, so a Gastecho plant would be considerably less complex and require far less capital investment than a F-T plant."

Robert W. Carr, Professor Emeritus,  
Chemical Engineering, University of Minnesota  
October 17, 2005.

The GasTechno™ process represents an industry breakthrough for low capital deployment of GTL facilities where feedstock costs are minimal – especially suitable for flared gas and CO2 injection for enhancing oil recovery.

The GasTechno™ process is a one-step chemical process for converting natural gas to methanol. Methanol, an extremely versatile commodity, is a liquid at ambient temperature and can be transported conventionally to market from remote locations.

#### The GasTechno™ process has considerable advantages over F-T technology:

- ▶ It requires only ONE chemical reaction step, not two.
- ▶ A GasTechno™ plant is considerably less complex.
- ▶ It requires far less capital investment (nearly doubling IRR).
- ▶ The chemical reaction is exothermic.
- ▶ Energy requirements are much less.
- ▶ The GasTechno™ plant size is highly scalable.

*Current analysis of the GasTechno™ process points to savings of up to 50% in capital expenditures and 20% in operational expenses.*