



## Company Profile

R3 Sciences is working to advance the production of methanol from carbon sources including natural gas, coal, biomass and solid waste. R3 Sciences effectively combines its professional development team of chemists, chemical engineers and mechanical engineers, with third-party technologies provided through its association with leading national & international research universities, commercial labs, and third-party providers.

The technologies under development at R3 Sciences include natural gas to methanol (G2M), biomass to methanol (B2M) and Methanol to DME production. These process systems are based on a modular skid, mini-plant design. The R3 Sciences' approach is fundamentally different from the traditional large-scale gas to liquid process plants. Much of the scientific and commercial development to date in these areas has been designed around world-scale plants requiring large capital and centralized production approach. Almost all of the currently commercial systems utilize the traditional Fischer-Tropsch, solid-catalyst process, whose conversion efficiency per pass is limited by several process considerations.

Conversely, R3 Sciences' G2M technology uses a novel patented and patent-pending catalyst processes to achieve high conversion efficiencies of synthesis gas. R3 Sciences' "*non-Fischer-Tropsch*", liquid catalyst system produces high-quality methanol.

The R3 Sciences' G2M process runs at comparatively low temperatures and pressures, greatly reducing overall capital requirements as well as the simplifying operating parameters. A distributed production model using smaller transportable production systems is a key part of the R3 Sciences business plan. The distributed model plan provides several important advantages: 1) accesses low volume gas market to G2M conversion; 2) capitalizes on "geographic arbitrage" as a result of regional disparities in gas and methanol pricing; 3) allows alternative commercial paths for physically or economically stranded gas; and 4) as a result of the foregoing, reduces carbon footprint of gas production & delivery.

With a growing inventory of stranded and flared natural gas, R3 Sciences will tap into a plentiful low-cost natural gas feedstock suitable for its G2M. As biomass gasification processes mature technically R3 Sciences' initiative in B2M will evolve quickly on the heels of advancements made in G2M.

R3 Sciences is commercializing its technologies through a series of joint ventures with channel partners in the U.S. and Canada, as well as selected regions in other parts of the globe.

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