

# Molecular Gate<sup>®</sup> Adsorption Technology

## Molecular Gate SPEC PLANT for CO<sub>2</sub> Removal from Smaller Flow Rates



*Molecular Gate<sup>®</sup> "SPEC Plant"  
For Smaller Flow Rates*

Molecular Gate<sup>™</sup> adsorption systems for upgrading contaminated natural gas are rapidly growing in popularity with two-dozen projects underway. This includes projects for the removal of carbon dioxide (CO<sub>2</sub>) and for the rejection of nitrogen (N<sub>2</sub>) from natural gas, or removal of a mixture of N<sub>2</sub> and CO<sub>2</sub>. Molecular Gate<sup>®</sup> adsorbents are a new type of molecular sieve that can adsorb and remove CO<sub>2</sub> (as well as N<sub>2</sub>) from contaminated natural gas.

Generally for CO<sub>2</sub> removal, Molecular Gate technology is most appropriate for lower pressures and lower CO<sub>2</sub> concentrations however CO<sub>2</sub> levels of up to 40% have been upgraded to pipeline specifications.

Molecular Gate systems for CO<sub>2</sub> removal from conventional natural gas wells, associated gas from water floods, coal bed methane, landfill gas and biogas can be applied. In general, CO<sub>2</sub> is removed to a typical pipeline specification of 2% or less. Purification to ppm levels for peakshavers is also appropriate.

Experience indicates that contaminated gas production inherently means that the wells have not been produced for extended periods. This is due to the fact that the contamination restricts the

introduction of the gas into the pipeline system unless a blending arrangement can be negotiated. An expensive leap of faith by the producer is required to prove the wells and requires a substantial investment in the field and upgrading technology.

### **SPEC Plant Alternative**

To help alleviate this investment risk, Guild Associates, Inc. offers SPEC Plants on a purchase or rental basis to allow production and well decline evaluation while limiting the investment required.

The system is also appropriate for long-term use on smaller flow rates.

The SPEC PLANT operates by removing the impurity at 60-100 psig, produces methane at 50-90 psig and rejects the CO<sub>2</sub>, water and any lost hydrocarbons at 5 psig. The system operates unattended with only a daily visit by the operator (typically the well pumper) and with all major equipment mounted on a skid for easy and quick installation.

Successful proof of the field allows the producer to proceed with a more aggressive drilling program targeting larger flows. Start-up services and training of the well pumper is provided but the simplicity of the system and shop operation prior to shipment makes start-up easy.

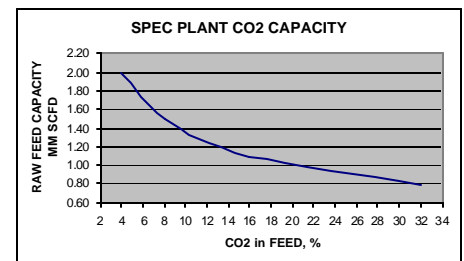
### **Complete Portability**

For installation, the footprint of the main skid is 8ft by 25-ft though peripheral items, such as compression, will require an area for placement. The skid is shipped with the vessels, vacuum pump, instrument air system, valves and instrumentation installed and pre-tested. The weight is about 30,000 lbs and easily shipped on a

doubled-drop truck. Installation is typically on a timber/gravel base or concrete pad. A separate skid of buffer tanks to smooth flows is also provided.

The portability of the system also makes it applicable to purifying associated gas after frac projects.

The capacity of the unit depends on the amount of CO<sub>2</sub> in the feed and the required product specification. Capacity for a product of 2% CO<sub>2</sub> is shown in the chart.



### **About Guild Associates**

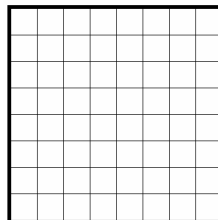
Guild Associates is the exclusive USA licensee of the Molecular Gate technology originally developed by Engelhard Corporation (now a part of the BASF Group), and provides adsorption and catalyst systems to a variety of markets as well as shop fabricated engineered systems including Molecular Gate systems.

### **Contact**

To learn more about Molecular Gate technology, contact Michael Mitariten, by phone, at 908-752-6420 or, by email, at [mike@moleculargate.com](mailto:mike@moleculargate.com)

You can also visit us on the Internet at [www.moleculargate.com](http://www.moleculargate.com)

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**Guild**  
**Associates, Inc.**

5750 Shier-Rings Road  
Dublin, OH 43016  
Phone: (614) 798-8215  
Fax: (614) 798-1972

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