Molecular Gate™ Unit

Nitrogen rejection and carbon dioxide removal using the Molecular Gate® adsorbent-based technology is gaining widespread acceptance in the natural gas industry. With two-dozen projects underway, the economic and easily operated system is allowing natural gas producers to develop contaminated fields with a simple technology that operates unattended with only a daily visit by the well pumper. Unlike other technologies, the system removes N₂ and CO₂ in a single step and provides high-on-stream factors with minimal operator attention.

The benefit of the removal of the inert from the methane in the Molecular Gate system has been underscored in field operation where very wide ranges of N₂ and CO₂ have been treated to pipeline specifications. In fact, units are in operation and achieving pipeline specifications with feed streams at twice the design level of contaminants due to unexpectedly poor feed gas quality. Feed streams of up to 40% contaminants have been treated to pipeline specification in a single step.

The technology is focused on two applications:

In nitrogen removal, the process operates by adsorbing nitrogen at about 100 psig while delivering the product sales gas at near feed pressure. No pretreatment, other than dehydration, is required and the system completely removes CO₂ along with the nitrogen in a single step. The system recovers 90-95% of the methane as sales gas and leaves sales gas at near feed pressure. All other technologies remove the methane, leaving the sales gas at low pressure and requiring significant recompression.

In CO₂ removal, water and CO₂ is removed in a single step, again with product methane delivered at near feed pressure. Cost is generally 20% lower than amine processing and with much less operator attention required while also dehydrating the gas.

Offered as a prefabricated, modular system based on patented adsorbent materials and processing steps, Molecular Gate technology is generating significant interest in the natural gas processing industry. Easy start-up, unattended operation, and cost-effectiveness are the hallmarks of the technology.

Flow rates handled to date range from 0.5 MMSCFD or smaller to 10 MMSCFD. A major feature of the process is the ability to meet pipeline specifications regardless of the feed composition, a benefit as future wells of varying composition are brought online.

System turndown is to zero flow and units are commonly designed for expansion of the treating capacity for future production—often to double the initial capacity.

Guild Associates also offers standalone natural gas dehydration units and systems to remove heavy hydrocarbons for dew point control or to CARB natural gas specifications.

Molecular Gate™ for Low Pressure Wells

About Guild Associates

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

Contact

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You can also visit us on the Internet at www.moleculargate.com.

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