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# Hydrocarbon Dew Point Control and Systems to Meet CARB Specifications



*Natural Gas Treatment Unit*

Guild Associates provides adsorption-based systems for dehydration and hydrocarbon dew point control. In these systems, water and hydrocarbons are removed from natural gas feed streams to the extent necessary to meet pipeline specifications. Systems provided for this service include both thermally regenerated systems (TSA) and pressure regenerated systems (PSA).

Guild Associates also provides adsorption-based systems for lighter hydrocarbon removal levels including systems for the removal of ethane and C3+ components as required by proposed CARB specifications. In this service, PSA systems have been provided.

Adsorption systems for dew point control take advantage of the fact that hydrocarbon adsorption follows the molecular weight of the hydrocarbon with heavier, higher molecular weight hydrocarbons adsorbed while lighter hydrocarbons pass through the adsorbent bed and are available as sales gas.

### PSA Systems

PSA Systems typically operate at lower pressure of 50-300 PSIG. In PSA dew point control systems, the

adsorbent bed removes the heavy hydrocarbons, thus producing conditioned sales gas at near feed pressure. The saturated bed is regenerated by pressure reduction, removing the heavier hydrocarbons from the adsorbent at low pressure at which point they can be used as fuel. Dependent upon site specifics, the heavy hydrocarbons can be recovered as liquid product. In most cases, PSA systems consist of three to four adsorber vessels, a shop fabricated and instrumented valve and piping skid, a vacuum pump for regeneration, and an operator friendly control system.

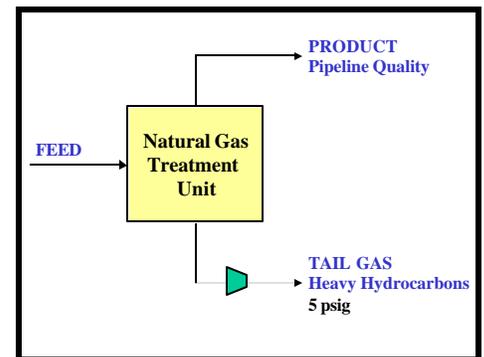
### TSA Systems

Thermally regenerated systems are normally applied at higher pressure (400+ psig). In the thermal regenerated hydrocarbon dew point control system, water and heavier hydrocarbons are adsorbed on a bed of adsorbent where they are removed while light hydrocarbons pass through as sales gas. The regenerating vessel is heated to desorb the water and heavy hydrocarbons and the effluent stream is cooled to condense the heavy ends, which leave the system as a liquid product. The adsorbent bed is then cooled before repeating the adsorption step.

### Systems for CARB Specifications

Proposed CARB specifications require that ethane be reduced to 6% or less, that C3+ components be reduced to 3% or less, and that C6+ components are less than 2,000 ppm. These specifications require a higher adsorbent bed capacity for the light hydrocarbons removal while providing high recovery rates of sales gas. In the CARB application, PSA is applied and, as with the systems for hydrocarbon dew point control, the tail gas leaves the system at low pressure and is typically used as fuel.

Adsorption systems for dew point and CARB requirements are appropriate for a wide range of flows from 0.5 MMSCFD to 20 MMSCFD, or more. System turndown is to zero flow and systems are noted for ease of operation, environmental friendliness with high reliability.



*Flows for PSA based Dew Point Control*

### About Guild Associates

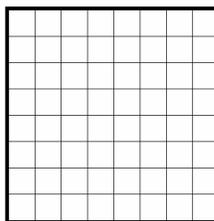
Guild Associates provides adsorption and catalyst systems to a variety of markets as well as shop fabricated engineered systems. Guild is the licensee of the Molecular Gate™ technology originally developed by Engelhard Corporation (now a part of the BASF Group) and has provided all systems to date.

### Contact

To learn more about Guild adsorption 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)

*Guild is a licensee of Molecular Gate® Adsorbent Technology and Guild is solely responsible for all representations made herein.*



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