

## Multitex Capabilities in Custom Built Regeneration Loop Dryer



In today's modern Oil & Gas processing facilities, the use of a Regeneration Loop Dryer is pivotal to processing the gas to reduce the water contents to the highest level to enhance the life of downstream pipes, equipment, and environmental compliance to restrict the regeneration gas release to atmosphere or flare.

Multitex, over the four decades of progressive experience and knowledge in the field of hydrocarbon industries, always has been at the forefront to provide the engineered solution to the client to meet their high expectation to deliver the correct effective solution to treat the gas for specified inlet & outlet conditions.

Multitex state of the art regeneration loop dryer of molecular sieves type dryer is the most cost-effective fully automated temperature swing adsorption process. This determines the performance and operating cost of molecular sieves over a given lifetime. Molecular sieves age with each regeneration cycle.

The adsorption process on the molecular sieve is a complex phenomenon and often poses challenges for the design and operation of the units, due to several parameters that govern the efficiency of such processes.

Poor design decisions and deviations from design conditions can cause a wide range of operating issues in a molecular sieve unit. Most of the damage from these upsets or deviations from design conditions usually occurs during the regenera-



tion step. If not addressed properly, these upsets can result in a reduced lifetime, increased pressure drop across beds, loss of product quality, formation of hydrates, increased system corrosion, or increased plant downtime—all of which have cost implications. It is, therefore, important to properly design and operate the regeneration phase of molecular sieves.

Multitex possesses good knowledge and in-depth understanding of the above challenges, which are taken care of during the conceptual to the total engineering phase. Hence, minimal tweaking at the start-up of the facility is required.

We ensure that the design and operation of the regeneration phase will govern

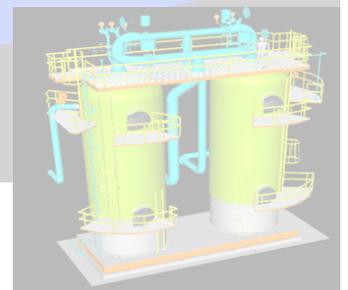
whether the residual water remains stable or increases with time, thereby affecting the capacity for adsorption during the adsorption phase and, therefore, affecting the lifetime of the molecular sieve

Molecular sieves are an efficient, reliable, and proven separation/purification technology. We make sure with our sub-vendor; the designed molecular sieve is of high-quality meeting the specification.

The adsorption and regeneration phases are complex and require precaution during design and troubleshooting. There-

fore, we make sure during the mathematical modeling such findings are addressed. For the operational controlling, the sequence and monitoring the performance sufficient smart instruments for automation are provided with a Cause & Effect table.

We take care in post supply phase to assist in commissioning of the supplied equipment to ensure that operational requirement is achieved.



Multitex in the recent past engaged with European clients to design, supply, and support similar systems for their prestigious production and processing facility in the Middle East.

### **Multitex Wider Dryer Product Ranges:**

Multitex is a highly experienced and versatile organization covering a wide range of dryers' types to cater to non-hydrocarbon gases and instrument air drying requirements to meet client-specific or international standards. Multitex product range of dryers for the compressed air dryers covers the desiccant, refrigerated, chemical and membrane types. Each drying technology works well. However, we make sure and advise the client which is best for the intended application.

### **Desiccant Air Dryer**

A desiccant air dryer system consists of two or more towers, one for drying the air and the other for regenerating the desiccant (the third one can be standby). The drying tower contains a porous desiccant material that inhibits water molecules as compressed air from the inlet passes over it.

### **Refrigerated Dryers**

Refrigerated dryers work by cooling the air to low temperatures and condensing much of the water vapor. These types use

a refrigeration system to cool the compressed air to a temperature as close to freezing as possible to condense out as much water as possible.

### **Heated Desiccant Air Dryer**

Heated desiccant air dryers utilize a source of heating within the drying tower to heat the desiccant material sufficiently to minimize the need for purge air. Typical dew points in heated dryers range from  $-40^{\circ}\text{C}$  to  $-73.3^{\circ}\text{C}$  ( $-40$  to  $-100^{\circ}\text{F}$ ).

### **Heatless Regenerative Desiccant Air Dryer**

Heatless desiccant dryers do not contain a heated system in the regenerating tower; instead, they utilize "purge air" to expel moisture from the tower. Typical dew points in heatless dryers range from  $-40^{\circ}\text{C}$  to  $-73.3^{\circ}\text{C}$  ( $-40$  to  $-100^{\circ}\text{F}$ ).

### **Membrane Air Dryer**

Membrane dryers use permeable membranes similar to nitrogen separation membranes or CO<sub>2</sub> separation membranes to extract water vapor from process air. These systems are convenient to use, more cost-effective, and require less maintenance since they have no moving parts. They are suitable for low-volume air separation.