Honeywell UOP | Ortloff

NGL Recovery

Recycle Split Vapor 2 Process for Retrofits

UOP's Ortloff Recycle Split Vapor 2 (RSV2) process is an enhancement to Ortloff's original Recycle Split Vapor (RSV) technology when retrofitting an existing NGL Recovery plant using Gas Subcooled Process (GSP) technology. The RSV2 process for retrofits can provide equal or higher ethane recovery from natural gas streams while also increasing the capacity above what can be accomplished when retrofitting with RSV.

The RSV2 retrofit design incorporates the same additional process equipment items (i.e. new absorber column, new heat exchange, liquid transfer pumps), and a residue gas recycle stream used when retrofitting a GSP plant with RSV. However, RSV2 also takes a portion of the inlet gas and bypasses the existing NGL Recovery plant feeding the inlet gas directly to the top of the existing Demethanizer column after cooling the stream in the new heat exchanger equipment.

Applications

RSV2 efficiently retrofits GSP plants for additional capacity at equal or higher ethane recoveries.

Like RSV, RSV2 technology can tolerate increased CO_2 inlet gas concentrations. Because it employs a leaner top reflux feed, the tower pressure can be increased while still providing high recovery. This provides a greater margin of safety from CO_2 freezing.

Typical applications for the RSV2 process include:

- Retrofits to GSP plants for higher ethane recovery from natural gas streams with essentially no loss of propane and heavier components.
- Retrofits to GSP plants to increase capacity beyond the original nameplate plant capacity.

Feedstock and Products

The RSV2 process can accommodate most natural gas compositions. Richer gas compositions may require the addition of a refrigeration system. Inlet pressures above 600 PSI are generally desirable.

In ethane recovery mode the RSV2 process produces a mixed NGL product stream, typically meeting a maximum methane in ethane liquid product specification.

The residue gas product stream will contain methane and lighter components, such as hydrogen and/or nitrogen.

Experience

UOP's Ortloff RSV technology was developed in the late 1990's and first utilized in 2000. More than 30 RSV plants are in operation around the world ranging in size from 28 MMSCFD to 1.5 BCFD. Ortloff also has extensive plant retrofit experience, having retrofitted more than 50 plants around the world ranging in size from 10 MMSCFD to 1.2 BCFD, including 4 retrofits to RSV. RSV2 utilizes proven RSV and other process concepts implemented into Ortloff technology.