Ortloff’s Recycle Split Vapor (RSV) Process is an enhancement of Ortloff’s original Gas Subcooled Process (GSP) technology. The RSV process can provide ultra-high ethane or propane recovery from natural gas streams. It can also be operated to only recover a portion of the ethane.

The RSV design incorporates the addition of a small reflux stream generated from residue gas which is used to supplement the traditional reflux streams. The residue reflux stream is fed into the demethanizer or deethanizer column to an additional rectification section that is installed above the typical top reflux feed point of the GSP process. The lower section of the tower provides bulk recovery of the desired liquid product while the top section provides a “polishing” step.

**Applications**

The RSV technology is extremely flexible, and can operate as either an ethane recovery or a propane recovery process. This flexibility allows an operator to maximize plant profits based on ethane economics. In addition, an RSV plant can operate at flow rates significantly different than design. In the case of lower flow, higher recoveries can be achieved; for flow rates higher than design, high product recoveries can be maintained.

Another important feature of the RSV technology is the ability to tolerate increased CO₂ 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 CO₂ freezing.

Typical applications for the RSV process include:

- High to ultra-high ethane recovery from natural gas streams with essentially no loss of propane and heavier components.
- High propane recovery from natural gas streams while rejecting lighter components to meet liquid product specifications.
- Gas processing plants where economic conditions may favor operating in either ethane recovery or ethane rejection mode.

RSV technology can be installed in a new facility or retrofit into an existing facility where ultra-high recoveries, increased throughput, and/or plant operational flexibility are desired.

**Feedstock and Products**

The RSV process can accommodate most natural gas compositions. Richer gas compositions may require the addition of a refrigeration system. Inlet pressures above 600 psi are preferred.
In the ethane recovery mode, a mixed NGL product stream is produced, typically meeting a maximum methane in ethane liquid product specification. In the propane recovery mode, a mixed LPG product stream is produced, typically meeting a maximum ethane in propane liquid product specification.

The residue gas product stream will contain methane or methane and ethane, depending on the mode of operation.

Orloff’s RSV technology was developed in the late 1990’s and first utilized in 2000. Several plants are now in operation, with others being designed and constructed around the world. RSV is the technology of choice for plants where high recovery and flexibility are of great importance.

For more information about this or any other Orloff process, contact Orloff Engineers, Ltd. at:

Phone: (432) 685-0277
Fax: (432) 685-0258
E-mail: oel@ortloff.com
Web: http://www.ortloff.com