

# Low Temperature Separation Process

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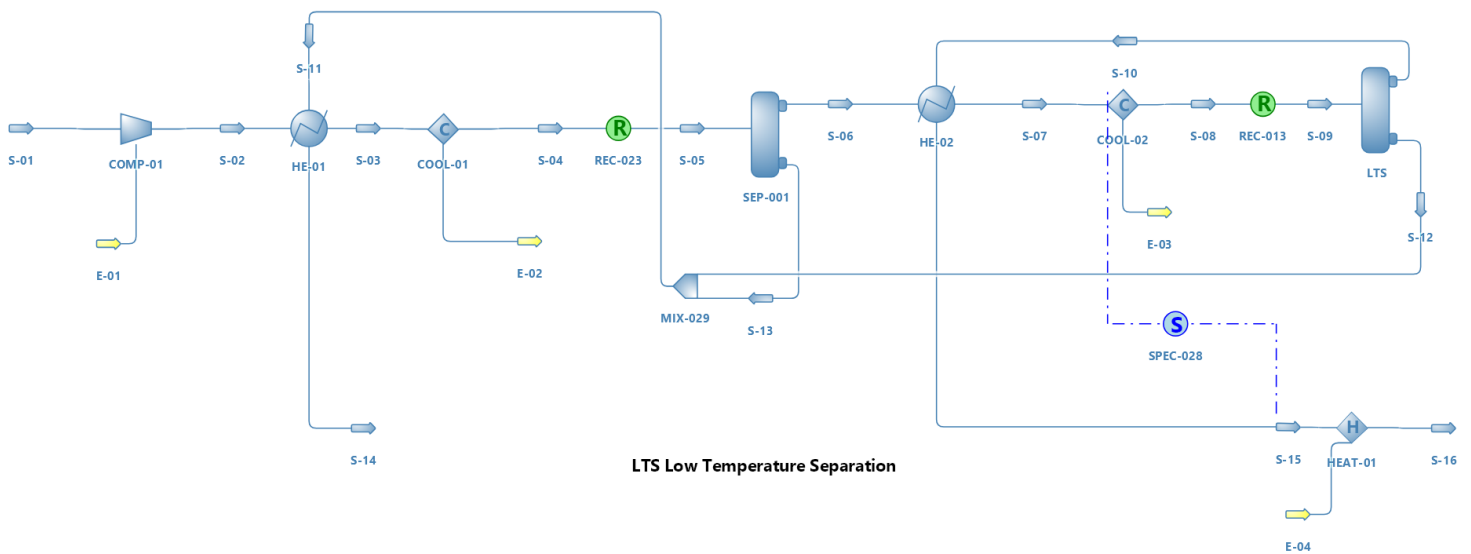
## Background & Description:

In this simulation, a simplified version of a refrigerated gas plant is going to be modeled. The purpose is to find the LTS (Low Temperature Separator) temperature at which the hydrocarbon dew point target is met. The Sales Gas hydrocarbon dew point should not exceed  $-15^{\circ}\text{C}$  at 6000 kPa.

The incoming gas is compressed to reach pressure 6000 kPa then cooled in Gas-Liquid heat exchanger (HE-01) with the condensate from the first and second separators as an economic solution, then the stream cooled in (COOL-01) and separated in the first stage separator (SEP-001).

The gas from the top of the first stag separator get throw the same process, gas passed throw the second Gas-Gas heat exchanger (HE-02) then in a propane chiller (COOL-02) and separated in the second separator LTS to produce the gas from the top of the LTS with the spec needed.

## Flowsheet:



**Results:**



**S-01 (2)**

PROPERTIES TABLE			
S-01 (2)	Temperature	-15	C
S-01 (2)	Pressure	60	barg
S-01 (2)	Vapor Phase Molar Fraction	0.912466	



**S-16 (2)**

PROPERTIES TABLE			
S-16 (2)	Temperature	-15	C
S-16 (2)	Pressure	60	barg
S-16 (2)	Vapor Phase Molar Fraction	1	

S-01	S-16
Product stream @ T= -15, P= 60 barg	Feed stream S-01 @ T= -15, P= 60 barg
Vapor fraction = 1	Vapor fraction = 0.912466

**Conclusion:**

The process is effective to achieve the product spec.