Depropanizer for Natural Gas Liquids

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Background & Description:

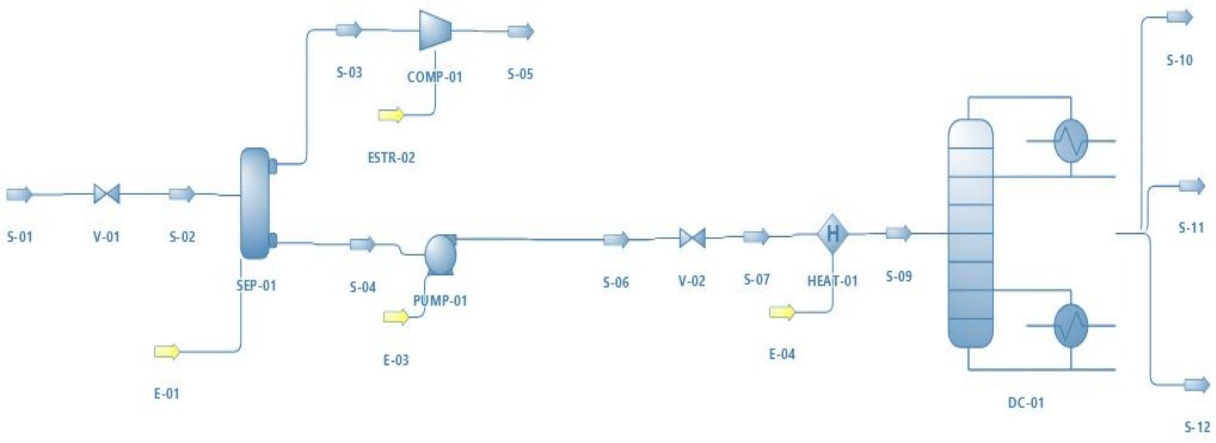
Depropanizer is used in the petrochemical industry to separate propane from a mixture of other heavy components. Natural gas liquids (NGL) will be processed in a depropanizer column for the recovery of desired product i.e propane. NGL first goes through the two phase separator, the light gas will be compressed and the liquid product from the separator is pumped to a heater before feeding the depropanizer column. The depropanizer has 24 stages, a reboiler and partial condensor operating at pressure of 18.25 bar and reflux ratio is 2. The top product has predominant mole fraction of propane i.e approximately 0.6 mole fraction.

Feed Composition (NGL) :

Name	Mole Fraction
Ethane	0.01
Propane	0.43
i - Butane	0.07
N - Butane	0.12
i - Pentane	0.05
N - Pentane	0.04
N - Hexane	0.28

Temperature - 15 degree celsius
Pressure - 3.8 bar
Mass Flow - 113184 kg/h
Volumetric Flowrate - 200 m^3/h

Flowsheet:



RESULT :

Object	S-12	S-11	S-10	S-09	S-07	S-06	S-05	S-04	S-03	S-02	S-01
Temperature, C	68.56	4.054	4.054	26.0675	26.0675	26.0386	24.992	25	25	9.9461	15
Pressure, bar	1.01325	1.01325	1.01325	19.31333	19.3133	20.0144	1.01325	1.01325	1.01325	3.1	3.8
Mass Flow, kg/h	16523.5	14011.1	0	30534.6	30534.6	30534.6	82649.7	30534.6	82649.7	113184	113184
Molar Flow,kmol/h	191.743	191.743	0	383.485	383.485	383.485	1474.2	383.485	1474.2	1857.69	1857.69