

Production of Cumene

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Background & Description:

Cumene is an organic compound that is based on an aromatic hydrocarbon with an aliphatic substitution. Commercial production of cumene is by Friedel-Crafts alkylation of benzene with propylene.

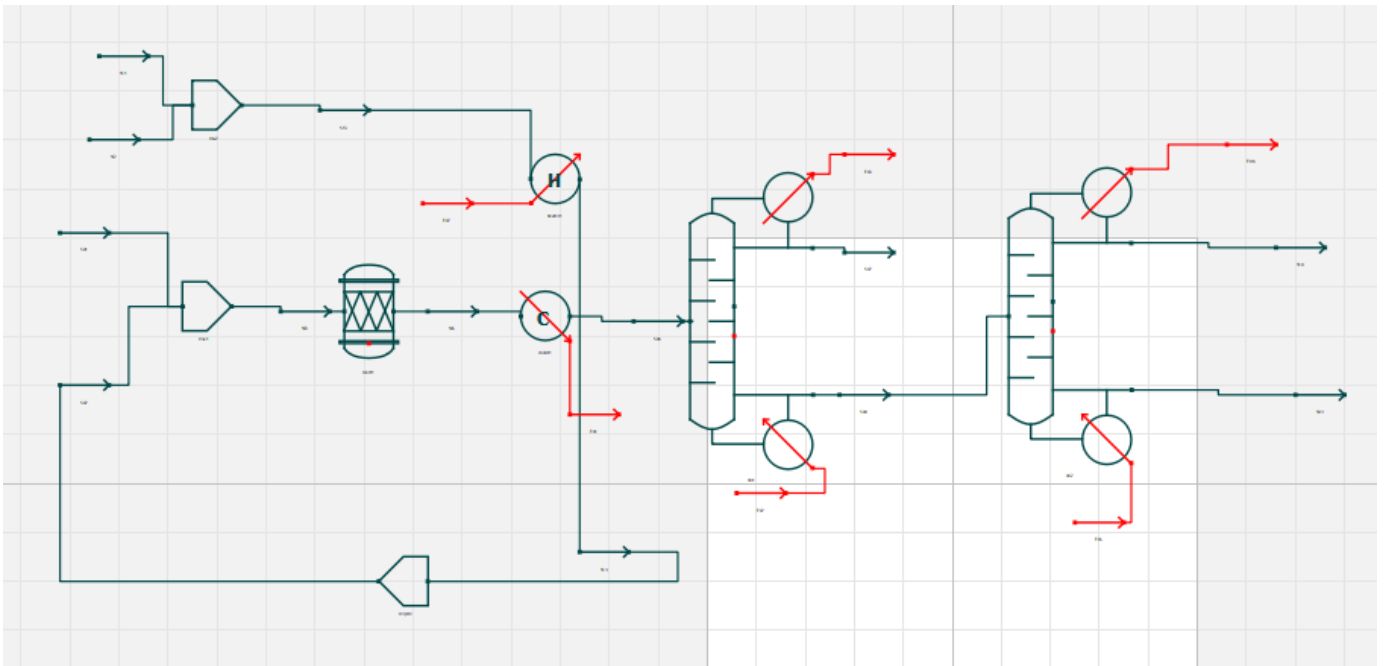
In the below flowsheet, cumene is produced by the above-mentioned reaction.

First the residual benzene separated from the second distillation column is mixed with some makeup benzene. The above stream is then mixed with a mixture containing butane and propylene.

The final mixed stream is fed into a reactor leading to production of cumene.

The products are then fed into a distillation column separating benzene and cumene as the bottom product. The bottom product is fed into the second distillation column separating the unreacted benzene and cumene.

Flowsheet:



Results:

The difference in mole fraction is butane

	Temperature (K)	Pressure (Pa)	Mole flow (mol/s)	Mole fraction (bezene)	Mole fraction (cumene)	Mole fraction (propylene)
S01	298.15	101325	2.1	0	0	0.75
S02	434.817	101355	5.03	0.999	0	0
S11	353.169	101325	3.77	0.999	0	0
S12	298.15	101325	1.25	1	0	0
S09	426.28	101325	1.25	0	1	0
S10	353.16	101325	3.77	0.999	0	0