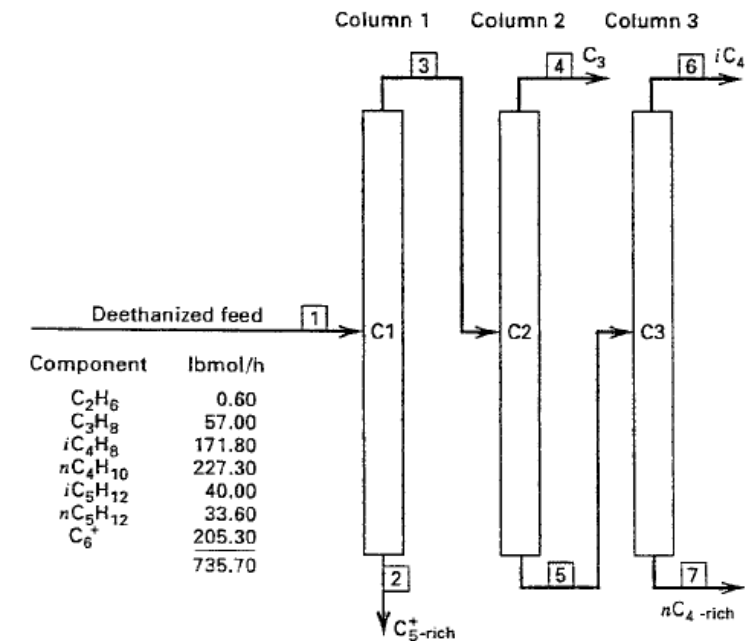


# Ex. Split Ratio & Fraction

- Given the following data on streams:
  - Perform Split Fraction and Split Ratios of the products in each column

Table 1.5 Operating Material Balance for Hydrocarbon Recovery Process

Component	lbmol/h in Stream						
	1 Feed to C1	2 C <sub>5</sub> <sup>+</sup> -rich	3 Feed to C2	4 C <sub>3</sub>	5 Feed to C3	6 iC <sub>4</sub>	7 nC <sub>4</sub> -rich
C <sub>2</sub> H <sub>6</sub>	0.60	0.00	0.60	0.60	0.00	0.00	0.00
C <sub>3</sub> H <sub>8</sub>	57.00	0.00	57.00	54.80	2.20	2.20	0.00
iC <sub>4</sub> H <sub>10</sub>	171.80	0.10	171.70	0.60	171.10	162.50	8.60
nC <sub>4</sub> H <sub>10</sub>	227.30	0.70	226.60	0.00	226.60	10.80	215.80
iC <sub>5</sub> H <sub>12</sub>	40.00	11.90	28.10	0.00	28.10	0.00	28.10
nC <sub>5</sub> H <sub>12</sub>	33.60	16.10	17.50	0.00	17.50	0.00	17.50
C <sub>6</sub> <sup>+</sup>	205.30	205.30	0.00	0.00	0.00	0.00	0.00
Total	735.60	234.10	501.50	56.00	445.50	175.50	270.00



# Ex. Split Ratio & Fraction

Table 1.5 Operating Material Balance for Hydrocarbon Recovery Process

Component	lbmol/h in Stream						
	1 Feed to C1	2 C <sub>5</sub> <sup>+</sup> -rich	3 Feed to C2	4 C <sub>3</sub>	5 Feed to C3	6 iC <sub>4</sub>	7 nC <sub>4</sub> -rich
C <sub>2</sub> H <sub>6</sub>	0.60	0.00	0.60	0.60	0.00	0.00	0.00
C <sub>3</sub> H <sub>8</sub>	57.00	0.00	57.00	54.80	2.20	2.20	0.00
iC <sub>4</sub> H <sub>10</sub>	171.80	0.10	171.70	0.60	171.10	162.50	8.60
nC <sub>4</sub> H <sub>10</sub>	227.30	0.70	226.60	0.00	226.60	10.80	215.80
iC <sub>5</sub> H <sub>12</sub>	40.00	11.90	28.10	0.00	28.10	0.00	28.10
nC <sub>5</sub> H <sub>12</sub>	33.60	16.10	17.50	0.00	17.50	0.00	17.50
C <sub>6</sub> <sup>+</sup>	205.30	205.30	0.00	0.00	0.00	0.00	0.00
Total	735.60	234.10	501.50	56.00	445.50	175.50	270.00

Table 1.6 Computed Split Fractions (SF) and Split Ratios (SR) for Hydrocarbon Recovery Process

Component	Column 1		Column 2		Column 3		Overall Percent Recovery
	SF	SR	SF	SR	SF	SR	
C <sub>2</sub> H <sub>6</sub>	1.00	Large	1.00	Large	—	—	100
C <sub>3</sub> H <sub>8</sub>	1.00	Large	0.9614	24.91	1.00	Large	96.14
iC <sub>4</sub> H <sub>10</sub>	0.9994	1,717	0.0035	0.0035	0.9497	18.90	94.59
nC <sub>4</sub> H <sub>10</sub>	0.9969	323.7	0.00	0.00	0.0477	0.0501	94.94
iC <sub>5</sub> H <sub>12</sub>	0.7025	2.361	0.00	0.00	0.00	0.00	29.75
nC <sub>5</sub> H <sub>12</sub>	0.5208	1.087	0.00	0.00	0.00	0.00	47.92
C <sub>6</sub> <sup>+</sup>	0.00	Small	—	—	—	—	100

