	MeOH	EtOH	nPOH	nBOH
zi	0.3	0.2	0.15	0.35
xi	0.3	0.2	0.15	0.35
yi	**0.587803**	**0.240432**	**0.084591**	**0.087172**

P Sat Data

T	MeOH	EtOH	nPOH	nBOH	□∑ziKi
50	415	220	88.9	33.7	0.254776
60	629	351.5	148.9	59.2	0.397440
65	767	438	190.1	77.7	0.491328
70	929	542	240.6	99.6	0.602697
75	1119	665	301.9	131.3	0.736763
80	1339	812	376	165	0.892434
82.954784	1489.103	913.6445	428.5951	189.2883	1
85	1593	984	465	206.1	1.074453
90	1884	1185	571	225.9	1.272256
100	2598	1706	843	387.6	1.819355

Equilib Data

T	MeOH K	EtOH K	nPOH K	nBOH K
50	0.546052	0.289473	0.116973	0.044342
60	0.827631	0.4625	0.195921	0.077894
65	1.009210	0.576315	0.250131	0.102236
70	1.222368	0.713157	0.316578	0.131052
75	1.472368	0.875	0.397236	0.172763
80	1.761842	1.068421	0.494736	0.217105
85	2.096052	1.294736	0.611842	0.271184
90	2.478947	1.559210	0.751315	0.297236
100	3.418421	2.244736	1.109210	0.51

	MeOH	EtOH	nPOH	nBOH	
zi	0.3	0.2	0.15	0.35	
yi	0.469443	0.308239	0.152306	0.070011	
xi	**0.087822**	**0.089168**	**0.135345**	**0.687021**	0.999357

P Sat Data

T	MeOH	EtOH	nPOH	nBOH	∑zi/Ki
50	415	220	88.9	33.7	10.41582
60	629	351.5	148.9	59.2	6.053770
65	767	438	190.1	77.7	4.667401
70	929	542	240.6	99.6	3.670366
75	1119	665	301.9	131.3	2.835828
80	1339	812	376	165	2.272781
85	1593	984	465	206.1	1.833394
90	1884	1185	571	225.9	1.626451
99.97393591	2596.139	1704.642	842.2910	387.1785	1
100	2598	1706	843	387.6	0.998362

Equilib Data

T	MeOH K	EtOH K	nPOH K	nBOH K		
50	0.546052	0.289473	0.116973	0.044342	88.9	33.7
60	0.827631	0.4625	0.195921	0.077894	148.9	59.2
65	1.009210	0.576315	0.250131	0.102236	190.1	77.7
70	1.222368	0.713157	0.316578	0.131052	240.6	99.6
75	1.472368	0.875	0.397236	0.172763	301.9	131.3
80	1.761842	1.068421	0.494736	0.217105	376	165
85	2.096052	1.294736	0.611842	0.271184	465	206.1
90	2.478947	1.559210	0.751315	0.297236	571	225.9
100	3.418421	2.244736	1.109210	0.51	843	387.6

T = 88.8 Celcius	MeOH	EtOH	nPOH	nBOH	Frac Bal Check
zi	0.3	0.2	0.15	0.35	1
xi	0.187116	0.162368	0.165784	0.486319	1.001588627
yi	0.469325	0.256447	0.126323	0.145520	0.9976170593
Mat Bal Check	0	0	0	0	

Overall Mat Bal

Feed	1
Vapor	0.4
Liquid	0.6

Equilib Data

T Celcius	MeOH K	EtOH K	nPOH K	nBOH K	ψ(.4) (V/F)
50	0.546052	0.289473	0.116973	0.044342	1.111175692
60	0.827631	0.4625	0.195921	0.077894	0.8816203808
65	1.009210	0.576315	0.250131	0.102236	0.750227682
70	1.222368	0.713157	0.316578	0.131052	0.6107807295
75	1.472368	0.875	0.397236	0.172763	0.4589820699
80	1.761842	1.068421	0.494736	0.217105	0.3054420553
85	2.096052	1.294736	0.611842	0.271184	0.1476489882
90	2.478947	1.559210	0.751315	0.297236	0.0134016576
90.38206681	2.514841	1.585402	0.764989	0.305365	0
100	3.418421	2.244736	1.109210	0.51	-0.3373657268

P Sat Data

T Celcius	MeOH	EtOH	nPOH	nBOH
50	415	220	88.9	33.7
60	629	351.5	148.9	59.2
65	767	438	190.1	77.7
70	929	542	240.6	99.6
75	1119	665	301.9	131.3
80	1339	812	376	165
85	1593	984	465	206.1
90	1884	1185	571	225.9
90.38206681	1906.236	1200.359	579.0998	227.4129
100	2598	1706	843	387.6

0.5414607651

0.2047868012

	Flow Tot.	Frac MeOH	Flow MeOH	Frac EtOH	Flow EtOH	Frac nPOH	Flow nPOH	Frac nBOH	Flow nBOH	Check
Feed	**100**	**0.3**	**30**	**0.2**	**20**	**0.15**	**15**	**0.35**	**35**	1
Bottoms	72.222	**0.049998615**	**3.611**	**0.2576915621**	**18.611**	0.20769294	*15*	0.484616875	*35*	1
Distillate	27.778	**0.9499964**	**26.389**	**0.05000359997**	**1.389**	*0*	*0*	*0*	*0*	1
Check	1		1		1		1		1	

Given specs are bolded
Initial guesses are italics

Dew Pt. **65.78**

Equilib Data P Sat Data

T Celcius	MeOH K	EtOH K	nPOH K	nBOH K	□∑xdi/Ki	T Celcius	MeOH	EtOH	nPOH	nBOH
50	0.546052632	0.289473684	0.116973684	0.044342105	1.912492152	50	415	220	88.9	33.7
60	0.827631579	0.4625	0.195921052	0.077894737	1.255965278	60	629	351.5	148.9	59.2
65	1.009210526	0.576315789	0.250131579	0.102236842	1.028090527	65	767	438	190.1	77.7
65.77684856	1.042328806	0.597576907	0.260455487	0.106713943	1	65.77684856	792.169893	454.15845	197.9461704	81.1025966
70	1.222368421	0.713157894	0.316578947	0.131052632	0.847292567	70	929	542	240.6	99.6
75	1.472368421	0.875	0.397236842	0.172763158	0.702363477	75	1119	665	301.9	131.3
80	1.761842106	1.068421053	0.494736842	0.217105263	0.586007726	80	1339	812	376	165
85	2.096052632	1.294736842	0.611842105	0.271184211	0.491851843	85	1593	984	465	206.1
90	2.478947368	1.559210526	0.751315789	0.297236842	0.415295543	90	1884	1185	571	225.9
100	3.418421053	2.244736842	1.109210526	0.51	0.300180958	100	2598	1706	843	387.6

Bubble Pt. **94.34**

Equilib Data P Sat Data

T Celcius	MeOH K	EtOH K	nPOH K	nBOH K	□∑xib*Ki	T Celcius	MeOH	EtOH	nPOH	nBOH
50	0.546052632	0.289473684	0.116973684	0.044342105	0.147680343	50	415	220	88.9	33.7
60	0.827631579	0.4625	0.195921052	0.077894737	0.239003305	60	629	351.5	148.9	59.2
65	1.009210526	0.576315789	0.250131579	0.102236842	0.300467108	65	767	438	190.1	77.7
70	1.222368421	0.713157894	0.316578947	0.131052632	0.374153033	70	929	542	240.6	99.6
75	1.472368421	0.875	0.397236842	0.172763158	0.465323733	75	1119	665	301.9	131.3
80	1.761842106	1.068421053	0.494736842	0.217105263	0.571378983	80	1339	812	376	165
85	2.096052632	1.294736842	0.611842105	0.271184211	0.696938223	85	1593	984	465	206.1
90	2.478947368	1.559210526	0.751315789	0.297236842	0.825828312	90	1884	1185	571	225.9
94.34	2.886932784	1.856914174	0.906738806	0.389633540	1	94.34	2194.06892	1411.254772	689.1214932	296.1214900
100	3.418421053	2.244736842	1.109210526	0.51	1.226895872	100	2598	1706	843	387.6

K Values	MeOH	EtOH	nPOH	nBOH	α Top	α Bottom	α Ave	α Gmean
65.78	1.04	0.60	0.26	0.11	1.74	1.55	1.65	1.646750818

70.00	1.22	0.71	0.32	0.13
75.00	1.47	0.88	0.40	0.17
80.00	1.76	1.07	0.49	0.22
85.00	2.10	1.29	0.61	0.27
90.00	2.48	1.56	0.75	0.30
94.34	2.89	1.86	0.91	0.39

Fenske

N min	**9.159875**	
	MeOH (i)	EtOH(j)
Bottoms Frac	0.04999861	0.257691562
Distillate Frac	0.9499964	0.050003599
Min Stages	9.15987517	

Recalc

N Min	**9.159875**	
	MeOH (i)	EtOH(j)
Bottoms Frac	0.04999927	0.25769495
Distillate Frac	0.94996387	0.05000188
Min Stages	9.15987517	

Redis.

Br EtOH	18.611
Dr EtOH	1.389
(αi,r)mPOH	0.46207838
(αi,r)mBOH	0.19420313

	POH	BOH
~~bi~~	~~14.9990497~~	~~34.99999921~~
di	0.00095024	0.000000789
bi recalc	14.9990497	34.99999921

Mat Bal Corr.

	Flow Tot.	Frac MeOH	Flow MeOH	Frac EtOH	Flow EtOH	Frac nPOH	Flow nPOH	Frac nBOH	Flow nBOH
Feed	100	0.3	30	0.2	20	0.15	15	0.35	35

Bottoms	72.2210489	0.049999273	3.611	0.2576949555	18.611	0.20768252	14.9990497	0.48462324	34.99999921
Distillate	27.7789510	0.949963876	26.389	0.05000188807	1.389	0.00003420	0.00095024	0.00000002	0.00000078
Check	1		1		1		1		1

Underwood

R min 2.19852

	Flow Tot.	Frac MeOH	Flow MeOH	Frac EtOH	Flow EtOH	Frac nPOH	Flow nPOH	Frac nBOH	Flow nBOH
Feed	100	0.3	30	0.2	20	0.15	15	0.35	35
Distillate	27.7789510	0.949963876	26.389	0.05000188807	1.389	0.00003420	0.00095024	0.00000002	0.00000078

K Values	MeOH	EtOH	nPOH	nBOH
65.78	1.04	0.60	0.26	0.11
70.00	1.22	0.71	0.32	0.13
75.00	1.47	0.88	0.40	0.17
80.00	1.76	1.07	0.49	0.22
80.06	1.77	1.07	0.50	0.22
85.00	2.10	1.29	0.61	0.27
90.00	2.48	1.56	0.75	0.30
94.34	2.89	1.86	0.91	0.39

	MeOH	EtOH	nPOH	nBOH
(αi,r)∞ T(80.0	1.64857963	1	0.463191568	0.2032922771

1-q = -0.1

Θ 4	Θ 3	Θ 2	Θ 1
9.65225	1.19525	0.550986	0.268632

(αi,r)	Θ 3	(αi,r)	Θ 2	(αi,r)
1.648579631	1.19525	1	0.550986	0.463191568

Rmin Θ 2 0.53801892

Rmin Θ 3 2.19852750

Gilliland

N Actual 16.8200

Reflux 3

X	0.20036812
Y	0.46015700
N Actual	16.8200556

Kirkbride

Feed Stage **9**

	Nr/Ns	Ns	Nr
Exact	1.11994094	7.934209542	8.885846137
Rounded	[redacted]	8	9