Workbook: Case (Main)

Material Streams

Fluid Pkg: All

Name		FEED	RECYCLE	mixed	to reactor	from reactor
Vapour Fraction		1.0000	1.0000	1.0000	1.0000	1.0000
Temperature	(C)	40.00 *	46.10 *	44.43	200.0 *	200.0 *
Pressure	(kPa)	4000 *	4000 *	4000	3950	3850
Molar Flow	(kgmole/h)	79.91	261.9 *	341.8	341.8	302.3
Mass Flow	(kg/h)	1000 *	1533	2533	2533	2533
Liquid Volume Flow	(m3/h)	2.795	8.128	10.92	10.92	9.311
Heat Flow	(kJ/h)	-7.836e+006	-9.193e+006	-1.703e+007	-1.540e+007	-1.655e+007
Name		dummy liquid	condensed mixture	vapour	liquid	PURGE
Vapour Fraction		0.0000	0.8678	1.0000	0.0000	1.0000
Temperature	(C)	200.0	40.00 *	40.00	40.00	40.00
Pressure	(kPa)	3850	3800	3800	3800	3800
Molar Flow	(kgmole/h)	0.0000	302.3	262.3	39.96	0.0000
Mass Flow	(kg/h)	0.0000	2533	1525	1008	0.0000
Liquid Volume Flow	(m3/h)	0.0000	9.311	8.135	1.176	0.0000
Heat Flow	(kJ/h)	0.0000	-1.971e+007	-9.157e+006	-1.055e+007	0.0000
Name		Recycled	to recycle	METHANOL	DUMMY	WATER
Vapour Fraction		1.0000	1.0000	1.0000	0.0000	0.0000
Temperature	(C)	40.00	46.10	138.2	138.2	174.3
Pressure	(kPa)	3800	4000 *	1000	1000	1015
Molar Flow	(kgmole/h)	262.3	262.3	19.97	3.996e-007	19.99
Mass Flow	(kg/h)	1525	1525	639.5	1.263e-005	368.4
Liquid Volume Flow	(m3/h)	8.135	8.135	0.8017	1.582e-008	0.3740
Heat Flow	(kJ/h)	-9.157e+006	-9.109e+006	-4.031e+006	-9.181e-002	-5.448e+006
Name		Water source	to condenser	final product	water return	shipping
Vapour Fraction		0.0000	0.0000	0.0007	0.0000	0.0000
Temperature	(C)	30.00 *	30.03	43.39	45.04	42.06
Pressure	(kPa)	150.0 *	600.0 *	950.0	550.0	200.0
Molar Flow	(kgmole/h)	712.8	712.8	19.97	712.8	19.70
Mass Flow	(kg/h)	1.284e+004 *	1.284e+004	639.5	1.284e+004	629.1
Liquid Volume Flow	(m3/h)	12.87	12.87	0.8017	12.87	0.7885
Heat Flow	(kJ/h)	-2.038e+008	-2.038e+008	-4.885e+006	-2.030e+008	-4.796e+006
Name		vent				
Vapour Fraction		1.0000				
Temperature	(C)	42.06				
Pressure	(kPa)	200.0				
Molar Flow	(kgmole/h)	0.2647				
Mass Flow	(kg/h)	10.44				
Liquid Volume Flow	(m3/h)	1.313e-002				
Heat Flow	(kJ/h)	-8.922e+004				

Compositions

Fluid Pkg: All

Name	FEED	RECYCLE	mixed	to reactor	from reactor
Comp Mole Frac (CO2)	0.2500 *	0.0874 *	0.1254	0.1254	0.0764
Comp Mole Frac (Hydrogen)	0.7500 *	0.9063 *	0.8698	0.8698	0.7874
Comp Mole Frac (Methanol)	0.0000 *	0.0049 *	0.0037	0.0037	0.0696
Comp Mole Frac (H2O)	0.0000 *	0.0015 *	0.0011	0.0011	0.0666
Name	dummy liquid	condensed mixture	vapour	liquid	PURGE
Comp Mole Frac (CO2)	0.0115	0.0764	0.0864	0.0109	0.0864
Comp Mole Frac (Hydrogen)	0.0145	0.7874	0.9073	0.0004	0.9073
Comp Mole Frac (Methanol)	0.3140	0.0696	0.0049	0.4943	0.0049
Comp Mole Frac (H2O)	0.6600	0.0666	0.0015	0.4944	0.0015
Name	Recycled	to recycle	METHANOL	DUMMY	WATER
Comp Mole Frac (CO2)	0.0864	0.0864	0.0219	0.0008	0.0000
Comp Mole Frac (Hydrogen)	0.9073	0.9073	0.0008	0.0000	0.0000
Comp Mole Frac (Methanol)	0.0049	0.0049	0.9596	0.9679	0.0296
Comp Mole Frac (H2O)	0.0015	0.0015	0.0178	0.0312	0.9704

* Specified by user.

Workbook: Case (Main) (continued)

Compositions (continued)

Fluid Pkg: All

Name	Water source	to condenser	final product	water return	shipping
Comp Mole Frac (CO2)	0.0000 *	0.0000	0.0219	0.0000	0.0118
Comp Mole Frac (Hydrogen)	0.0000 *	0.0000	0.0008	0.0000	0.0000
Comp Mole Frac (Methanol)	0.0000 *	0.0000	0.9596	0.0000	0.9702
Comp Mole Frac (H2O)	1.0000 *	1.0000	0.0178	1.0000	0.0180
Name	vent				
Comp Mole Frac (CO2)	0.7717				
Comp Mole Frac (Hydrogen)	0.0607				
Comp Mole Frac (Methanol)	0.1663				
Comp Mole Frac (H2O)	0.0013				

Energy Streams

Fluid Pkg: All

Name		heater duty	reactor cooling	Prod cooler duty	recyl comp power	CONDENSER DUTY
Heat Flow	(kJ/h)	1.626e+006	-1.151e+006	3.154e+006	4.807e+004	4.373e+006
Name		REBOILER DUTY	Pump power			
Heat Flow	(kJ/h)	5.444e+006	7677			

Unit Ops

Operation Name	Operation Type	Feeds	Products	Ignored	Calc Level
MIX-100	Mixer	FEED	mixed	No	500.0 *
		RECYCLE	
feed heater	Heater	mixed	to reactor	No	500.0 *
		heater duty	
REACTOR	Cont. Stirred Tank Reactor	to reactor	dummy liquid	No	500.0 *
		reactor cooling	from reactor		
			reactor cooling		
product cooler	Cooler	from reactor	condensed mixture	No	500.0 *
			Prod cooler duty		
separator	Separator	condensed mixture	liquid	No	500.0 *
			vapour		
purge splitter	Tee	vapour	PURGE	No	500.0 *
			Recycled		
recycle compressor	Compressor	Recycled	to recycle	No	500.0 *
		recyl comp power			
RECYCLE	Recycle	to recycle	RECYCLE	No	3500 *
DISTILLATION	Distillation	liquid	WATER	No	2500 *
		REBOILER DUTY	METHANOL		
			DUMMY		
			CONDENSER DUTY		
Water pump	Pump	Water source	to condenser	No	500.0 *
		Pump power			
Condenser	Heat Exchanger	METHANOL	final product	No	500.0 *
		to condenser	water return		
Water T control	Adjust			No	3500 *
methanol storage	Tank	final product	shipping	No	500.0 *
			vent		

* Specified by user.