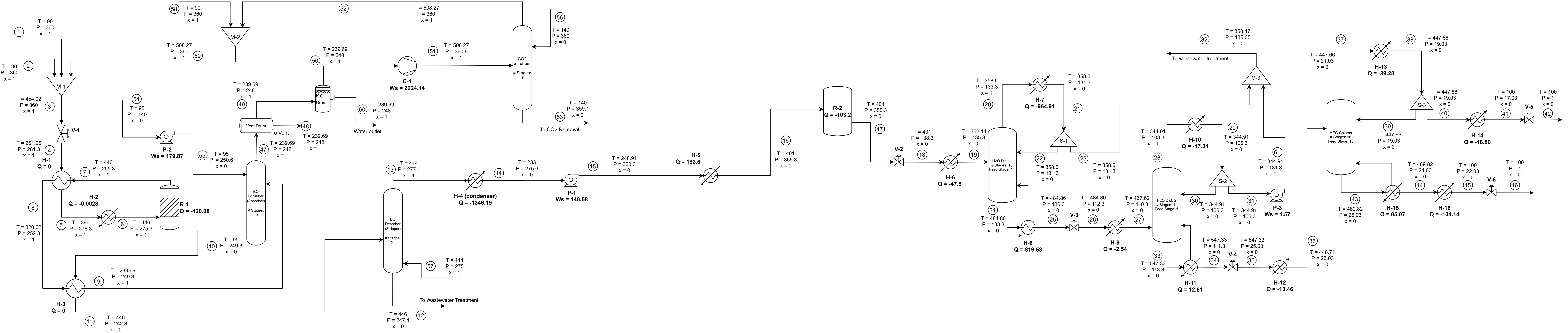

Property	Symbol	Units
Temperature	T	°F
Pressure	P	psig
Duty	Q	MMBtu/hr
Work	Ws	hp
Vapor fraction	x	Unitless

Group 13

Sehar Allana
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Streams No.	1	2	3	4	5	6	7	8	9	10
Description	Ethylene Fresh Feed	O2 Fresh Feed	Mixed R1 Feed (Ethylene, O2, and Recycle)	Mixed R1 Feed after Throttling	H-1 Outlet	H-2 Outlet	R1 Outlet	R1 Outlet after heatx	EO scrubber inlet	EO scrubber outlet
Temperature [°F]	90.00	90.00	454.92	261.26	396.00	446.00	446.00	320.62	239.69	95.00
Pressure [psig]	360.00	360.00	360.00	281.30	278.30	275.30	255.30	252.30	249.30	249.30
Phase	vapor	vapor	vapor	vapor	vapor	vapor	vapor	vapor	vapor	liquid
Mass flow rate [lb/hr]										
Argon	0	195	19547	19547	19547	19547	19547	19547	19547	0
Carbon Dioxide	0	0	11824	11824	11824	11824	56578	56578	56578	594
Di-Ethylene Glycol	0	0	0	0	0	0	0	0	0	0
Ethane	105	0	10497	10497	10497	10497	10497	10497	10497	6
Ethylene	105044	0	950904	950904	950904	950904	855824	855824	855824	1377
Ethylene Glycol	0	0	0	0	0	0	0	0	0	0
Ethylene Oxide	0	0	19372	19372	19372	19372	146295	146295	146295	126746
Oxygen	0	97541	357948	357948	357948	357948	263037	263037	263037	0
Triethylene Glycol	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	18320	18320	18320	1178262
Methane	0	0	220364	220364	220364	220364	220364	220364	220364	105
Amine Solution	0	0	0	0	0	0	0	0	0	0
Total	105150	97736	1590455	1590455	1590455	1590455	1590462	1590462	1590462	1307091

Streams No.	11	12	13	14	15	16	17	18	19	20
Description	EO scrubber outlet after 1st heatx	EO Desorber Outlet (Lean H2O to wastewater treatment)	EO desorber outlet (EO rich)	P-1 Inlet	H-4 Inlet (R2 Feed)	R2 Feed @ T & P	R2 Outlet	V-2 Outlet	Evap 1 Inlet	Evap 1 Overhead
Temperature [°F]	446.00	446.00	414.00	233.00	248.91	401.00	401.00	401.00	362.14	358.60
Pressure [psig]	242.30	247.40	277.10	275.60	360.30	355.30	355.30	138.30	135.30	133.30
Phase	liquid	liquid	vapor	liquid	liquid	liquid	liquid	liquid	liquid	vapor
Mass flow rate [lb/hr]										
Argon	0	0	0	0	0	0	0	0	0	0
Carbon Dioxide	594	594	0	0	0	0	0	0	0	0
Di-Ethylene Glycol	0	0	0	0	0	0	4713	4713	4713	52
Ethane	6	6	0	0	0	0	0	0	0	0
Ethylene	1377	1377	0	0	0	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0	0	170622	170622	170622	188
Ethylene Oxide	126746	1560	125186	125186	125186	125186	0	0	0	0
Oxygen	0	0	0	0	0	0	0	0	0	0
Triethylene Glycol	0	0	0	0	0	1.9	188.4	188.4	188	2
Water	1178262	1178262	1075702	1075702	1075702	1075702	1025358	1024489	1024489	1116771
Methane	105	105	0	0	0	0	0	0	0	0
Amine Solution	0	0	0	0	0	0	0	0	0	0
Total	1307091	1181905	1200888	1200888	1200888	1200890	1200881	1200013	1200013	1117012

Streams No.	21	22	23	24	25	26	27	28	29	30
Description	Condensed evap 1 OH	Evap 1 Reflux	Evap 1 distillate to mixer	Evap 1 total bottoms	V-3 Inlet	H-8 Inlet	Evap 2 feed	Evap 2 overhead	Condensed Evap 2 OH	Evap 2 Reflux
Temperature [°F]	358.60	358.60	358.60	484.86	484.86	484.86	467.62	344.91	344.91	344.91
Pressure [psig]	132.30	132.30	132.30	138.30	136.30	112.30	110.30	108.30	106.30	106.30
Phase	liquid	liquid	liquid	liquid	liquid	liquid	liquid	vapor	liquid	liquid
Mass flow rate [lb/hr]										
Argon	0	0	0	0	0	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0	0	0	0	0	0
Di-Ethylene Glycol	52	5	47	4769	4666	4666	4666	90	90	44
Ethane	0	0	0	0	0	0	0	0	0	0
Ethylene	0	0	0	0	0	0	0	0	0	0
Ethylene Glycol	188	17	171	170515	170452	170452	170452	330	330	159
Ethylene Oxide	0	0	0	0	0	0	0	0	0	0
Oxygen	0	0	0	0	0	0	0	0	0	0
Triethylene Glycol	2	0	2	720	187	187	187	4	4	2
Water	1116771	102526	1014244	1126979	10245	10245	10245	19635	19635	9479
Methane	0	0	0	0	0	0	0	0	0	0
Amine Solution	0	0	0	0	0	0	0	0	0	0
Total	1117012	102548	1014464	1302983	185549	185549	185549	20059	20059	9683

Streams No.	31	32	33	34	35	36	37	38	39	40
Description	Evap 2 distillate to mixer	H-11 Inlet	Evap 2 total bottoms	V-4 Inlet	H-12 Inlet	MEG Column Feed	MEG column overhead	Condensed MEG OH	MEG column reflux	MEG distillate to H-14
Temperature [°F]	344.91	358.47	547.33	547.33	547.33	448.71	447.66	447.66	447.66	447.66
Pressure [psig]	106.30	132.04	113.30	111.30	25.03	23.03	21.03	19.03	19.03	19.03
Phase	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid
Mass flow rate [lb/hr]										
Argon	0	0	0	0	0	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0	0	0	0	0	0
Di-Ethylene Glycol	47	94	4709	4619	4619	4619	129	129	45	84
Ethane	0	0	0	0	0	0	0	0	0	0
Ethylene	0	0	0	0	0	0	0	0	0	0
Ethylene Glycol	170	341	170611	170281	170281	170281	258118	258118	89539	168579
Ethylene Oxide	0	0	0	0	0	0	0	0	0	0
Oxygen	0	0	0	0	0	0	0	0	0	0
Triethylene Glycol	2	4	188	185	185	185	0	0	0	0
Water	10157	1024401	19723	88	88	88	129	129	45	84
Methane	0	0	0	0	0	0	0	0	0	0
Amine Solution	0	0	0	0	0	0	0	0	0	0
Total	10376	1024840	195232	175173	175173	175173	258376	258376	89629	168747

Streams No.	41	42	43	44	45	46	47	48	49	50
Description	V-5 Inlet	MEG product	MEG column total bottoms	H-16 inlet	V-6 Inlet	DEG/TEG Products	EO scrubber overhead (EO lean)	Inerts vented	KO Drum Inlet	C-1 Inlet
Temperature [°F]	447.66	100.00	489.82	489.82	100.00	100.00	239.69	239.69	239.69	239.69
Pressure [psig]	19.03	1.00	26.03	24.03	22.03	1.00	248.00	248.00	248.00	248.00
Phase	liquid	liquid	liquid	liquid	liquid	liquid	vapor	vapor	vapor	vapor
Mass flow rate [lb/hr]										
Argon	0	0	0	0	0	0	19547	195	19352	19352
Carbon Dioxide	0	0	0	0	0	0	55984	560	55424	55424
Di-Ethylene Glycol	84	84	4664	4535	4535	4535	0	0	0	0
Ethane	0	0	0	0	0	0	10490	105	10386	10386
Ethylene	0	0	0	0	0	0	854447	8544	845903	845903
Ethylene Glycol	168579	168579	259820	1703	1703	1703	0	0	0	0
Ethylene Oxide	0	0	0	0	0	0	19571	196	19375	19375
Oxygen	0	0	0	0	0	0	263037	2630	260407	260407
Triethylene Glycol	0	0	185	185	185	185	0	0.0	0.0	0.0
Water	84	84	133	4	4	4	19579	196	19383	0
Methane	0	0	0	0	0	0	220258	2203	218056	218056
Amine Solution	0	0	0	0	0	0	0	0	0	0
Total	168747	168747	264802	6426	6426	6426	1462914	14629	1448285	1428902

Streams No.	51	52	53	54	55	56	57	58	59	60	61
Description	CO2 Scrubber Inlet	CO2 Scrubber Overhead	CO2 scrubber outlet to CO2 Removal	P-2 Inlet	Fresh water to EO scrubber feed	Amine solution to CO2 scrubber	Stripping steam to EO desorber	Methane fresh feed	Recycle to R1 feed	K.O. Drum wastewater outlet	P-3 Outlet
Temperature [°F]	508.27	508.27	140.00	95.00	95.00	140.00	414.00	90.00	508.27	239.69	344.91
Pressure [psig]	360.90	360.00	359.10	140.00	250.60	360.00	275.00	360.00	360.00	248.00	132.30
Phase	vapor	vapor	liquid	liquid	liquid	liquid	vapor	vapor	vapor	liquid	liquid
Mass flow rate [lb/hr]											
Argon	19352	19352	0	0	0	0	0	0	19352	0	0
Carbon Dioxide	55424	11825	43337	0	0	0	0	0	11825	0	0
Di-Ethylene Glycol	0	0	0	0	0	0	0	0	0	0	47
Ethane	10386	10386	0	0	0	0	0	0	10386	0	0
Ethylene	845903	845890	13	0	0	0	0	0	845890	0	0
Ethylene Glycol	0	0	0	0	0	0	0	0	0	0	170
Ethylene Oxide	19375	19375	0	0	0	0	0	0	19375	0	0
Oxygen	260407	260407	0	0	0	0	0	0	260407	0	0
Triethylene Glycol	0	0	0	0	0	0	0	0	0	0	2
Water	0	0	0	1179521	1179521	0	1075702	0	0	19383	10157
Methane	218056	218056	1	0	0	0	0	2308	220364	0	0
Amine Solution	0	0	427980	0	0	427980	0	0	0	0	0
Total	1428902	1385290	471331	1179521	1179521	427980	1075702	2308	1387598	19383	10376