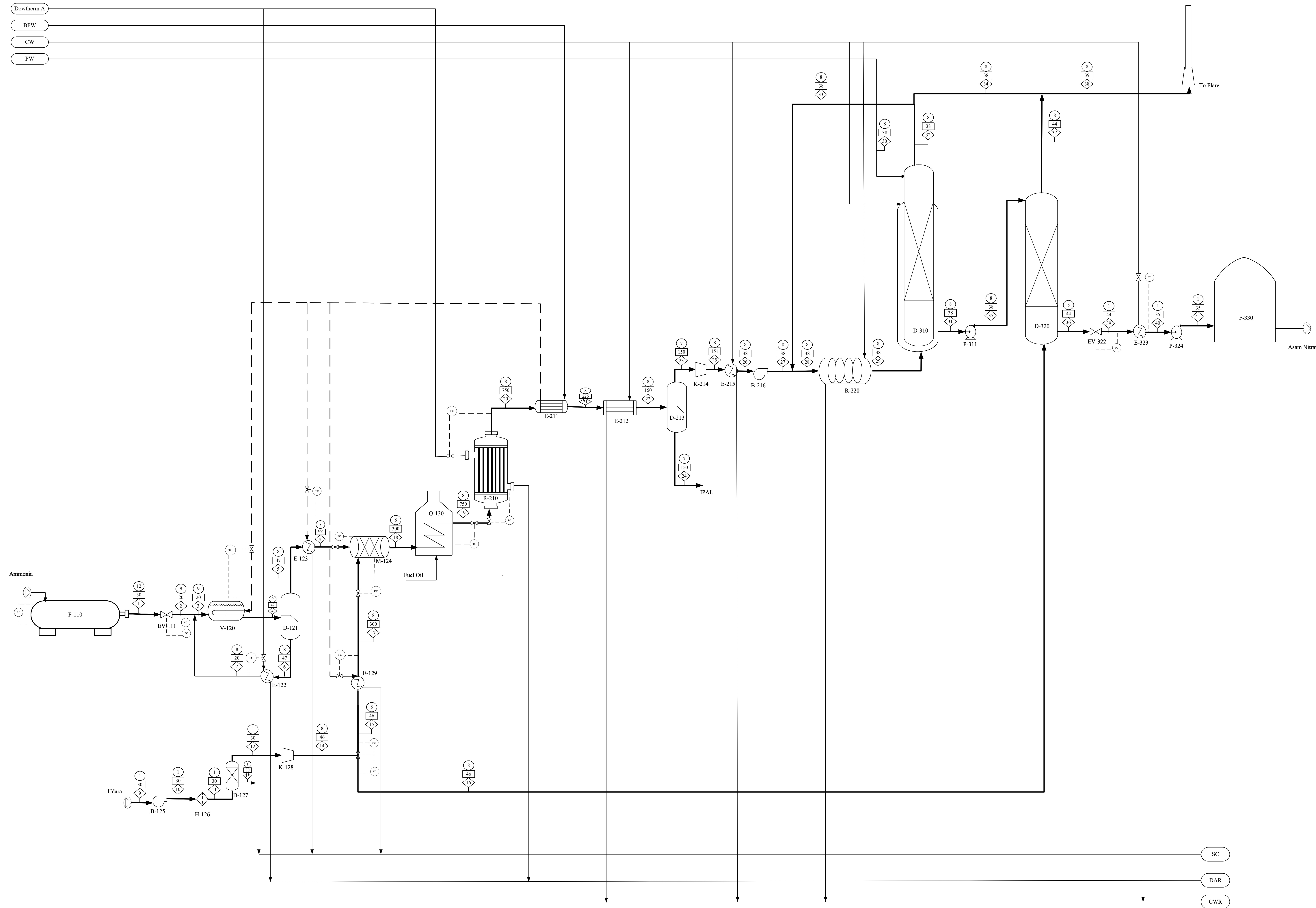


PRA PERANCANGAN PABRIK ASAM NITRAT DARI AMMONIA DAN UDARA DENGAN PROSES OSTWALD



KETERANGAN:

	Aliran Massa
	Temperatur ; °C
	Tekanan ; atm
	Dowtherm A
	Cooling Water
	Process Water
	Boiling Feed Water
	Steam Condensate
	Cooling Water Return
	Dowtherm A Return

No.	Kode	Nama Alat
1	F-110	Tangki Penyimpanan Amonia
2	EV-111	Expansion Valve-1
3	V-120	Vaporizer
4	D-121	Separator-1
5	E-122	Cooler-1
6	E-123	Heater-1
7	M-124	Mixer
8	B-125	Blower-1
9	H-126	Filter Udara
10	D-127	Molecular Sieve
11	K-128	Kompresor-1
12	E-129	Heater-2
13	Q-130	Furnace
14	R-210	Reaktor
15	E-211	Waste Heat Boiler
16	E-212	Cooler-Kondensor
17	D-213	Separator-2
18	K-214	Kompresor-2
19	E-215	Cooler-2
20	B-216	Blower-2
21	R-220	Oxydation Chamber
22	D-310	Absorber
23	L-311	Pompa-1
24	D-320	Bleacher
25	Q-321	Flare Stack
26	L-322	Expansion Valve-2
27	E-323	Cooler-3
28	L-324	Pompa-2
29	F-330	Tangki Penyimpanan Asam Nitrat 68%

Digambar Oleh :
Mochammad Arip Pancar Agung (21031010016)

DOSEN PEMBIMBING : Ir. Sani, MT

FLWSHEET PRA RANCANGAN PABRIK ASAM NITRAT DARI AMMONIA DAN UDARA DENGAN PROSES OSTWALD

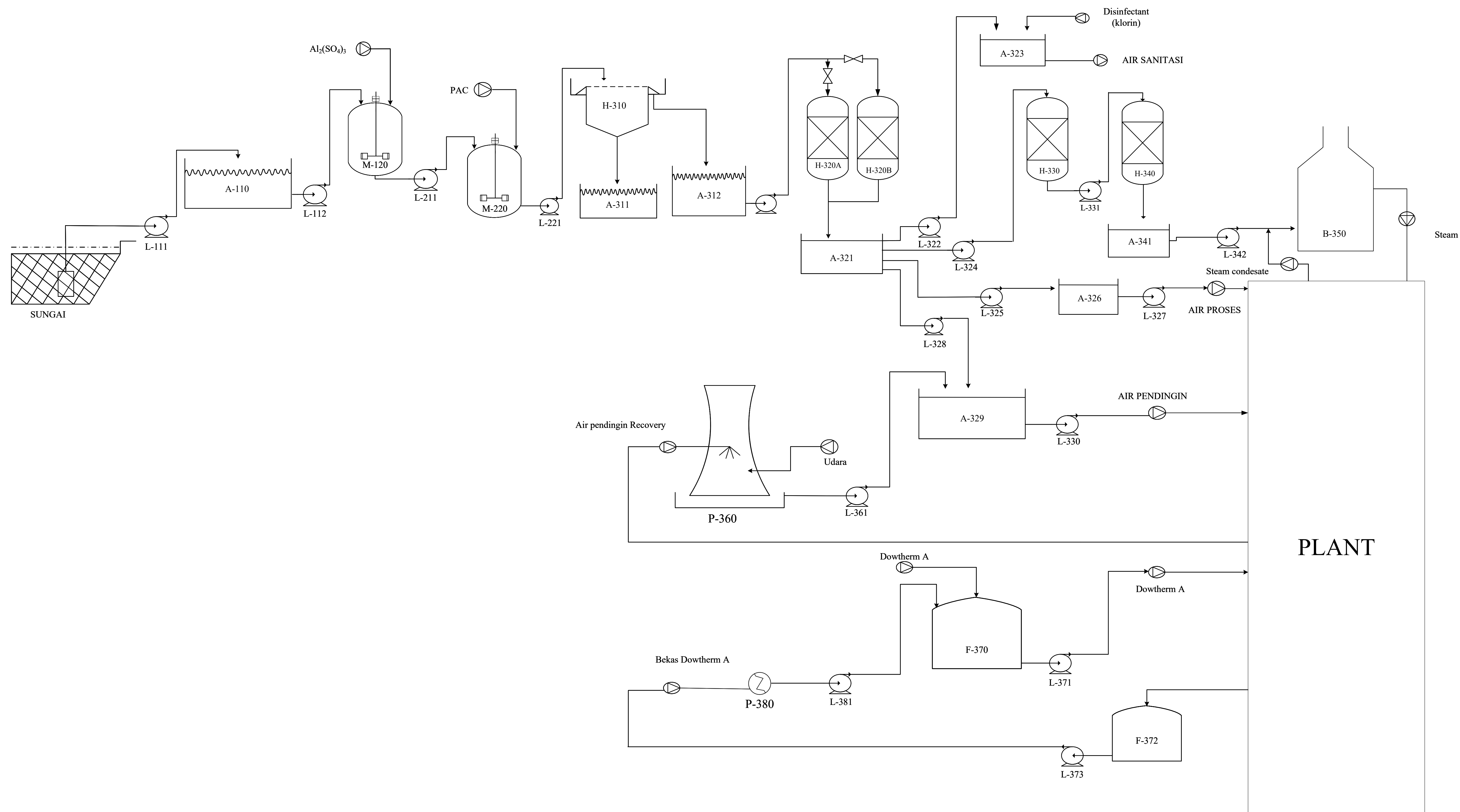


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2025

	Komponen	1	2	3	4	5	6	7	8	9	10	Aliran		12	13	14	15	16	17	18	19	20	21
		12	9	9	9	8	8	8	8	1	1	1	30	1	30	30	46	46	46	300	300	750	750
Massa kg/jam	NH ₃ (l)	2.671,0786	2.671,0786	3.338,8483	667,7697	-	667,7697	667,7697	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-
	NH ₃ (g)	-	-	-	2.671,0786	2.671,0786	-	-	2.671,0786	-	-	-	-	-	-	-	-	-	-	2.671,0786	2.671,0786	-	-
	H ₂ O (l)	13,4225	13,4225	16,7781	3,3556	-	3,3556	3,3556	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	H ₂ O (g)	-	-	-	13,4225	13,4225	-	-	13,4225	565,8427	565,8427	565,8427	-	-	565,8427	-	-	-	-	13,4225	13,4225	4.255,7239	4.255,7239
	O ₂ (g)	-	-	-	-	-	-	-	-	-	11.179,7118	11.179,7118	11.179,7118	11.179,7118	-	11.179,7118	9.502,7551	1.676,9568	9.502,7551	9.502,7551	9.502,7551	3.532,1087	3.532,1087
	N ₂ (g)	-	-	-	-	-	-	-	-	-	36.799,8848	36.799,8848	36.799,8848	36.799,8848	-	36.799,8848	31.279,9021	5.519,9827	31.279,9021	31.279,9021	31.279,9021	31.554,8661	31.554,8661
	NO (g)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.124,4597	4.124,4597
	NO ₂ (g)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HNO ₃ (aq)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kondisi Operasi	Total	2.684,5011	2.684,5011	3.355,6264	3.355,6264	2.684,5011	671,1253	671,1253	2.684,5011	48.545,4393	48.545,4393	48.545,4393	47.979,5966	565,8427	47.979,5966	40.782,6571	7.196,9395	40.782,6571	43.467,1583	43.467,1583	43.467,1583	43.467,1583	43.467,1583
	Tekanan (atm)	12	9	9	9	8	8	8	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Massa kg/jam	Temperatur (C)	30	20	20	47	47	47	20	300	30	30	30	30	30	30	46	46	46	300	300	750	750	226
	Komponen	22	23	24	25	26	27	28	29	30	31	Aliran		32	33	34	35	36	37	38	39	40	41
	NH ₃ (l)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NH ₃ (g)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	H ₂ O (l)	4.255,7239	-	4.255,7239	-	-	-	-	-	3.950,2165	3.030,3030	-	-	-	-	3.030,3030	3.030,3030	-	-	-	3.030,3030	3.030,3030	3.030,3030
	H ₂ O (g)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	O ₂ (g)	3.532,1087	3.532,1087	-	3.532,1087	3.532,1087	3.532,1087	4.482,0043	1.899,7912	-	-	1.899,7912	949,8956	949,8956	-	-	-	-	1.676,9568	2.626,8524	-	-	-
	N ₂ (g)	31.554,8661	31.554,8661	-	31.554,8661	31.554,8661	31.554,8661	63.109,7321	63.109,7321	-	-	63.109,7321	31.554,8661	31.554,8661	-	-	-	-	5.519,9827	37.074,8488	-	-	-
	NO (g)	4.124,4597	4.124,4597	-	4.124,4597	4.124,4597	4.124,4597	4.940,4588	98,8092	-	-	1.631,9982	815,9991	815,9991	-	-	-	-	-	-	-	-	-
Kondisi Operasi	NO ₂ (g)	-	-	-	-	-	-	-	7.423,8627	-	-	371,1931	-	-	-	371,1931	-	371,1931	815,9991	-	-	-	-
	HNO ₃ (aq)	-	-	-	-	-	-	-	-	-	6.439,3940	-	-	-	-	6.439,3940	-	6.439,3940	-	-	6.439,3940	6.439,3940	6.439,3940
Kondisi Operasi	Total	43.467,1583	39.211,4344	4.255,7239	39.211,4344	39.211,4344	39.211,4344	72.532,1952	72.532,1952	3.950,2165	9.840,8901	66.641,5215	33.320,7607	33.320,7607	33.320,7607	9.840,8901	9.469,6970	7.568,1326	40.888,8934	9.469,6970	9.469,6970	9.469,6970	9.469,6970
	Tekanan (atm)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	1	1	1
	Temperatur (C)	150	150	150	151	38	38	38	38	38	38	38	38	38	38	38	38	44	44	39	44	35	35

FLOWSHEET UTILITAS

PABRIK ASAM NITRAT DARI AMMONIA DAN UDARA DENGAN PROSES OSTWALD



No.	KODE ALAT	NAMA ALAT
1.	L-111	POMPA AIR SUNGAI
2.	A-110	TANGKI PENAMPUNG AIR SUNGAI
3.	L-112	POMPA KOAGULAN
4.	M-210	TANGKI KOAGULASI
5.	L-211	POMPA CLARIFIER
6.	M-220	TANGKI FLOKULASI
7.	L-221	POMPA FLOK
8.	H-310	CLARIFIER
9.	A-311	BAK PENAMPUNG FLOK
10.	A-312	BAK AIR BERSIH DARI CLARIFIER
11.	H-320 A/B	SAND FILTER
12.	A-321	BAK AIR BERSIH
13.	L-322	POMPA SANITASI
14.	A-323	BAK AIR SANITASI
15.	L-324	POMPA TANGKI ION EXCHANGER
16.	L-325	POMPA KE PENAMPUNG AIR PROSES
17.	A-326	BAK AIR PROSES
18.	L-327	POMPA AIR PROSES
19.	L-328	POMPA AIR PENDINGIN-1
20.	A-329	BAK AIR PENDINGIN
21.	L-330	POMPA AIR PENDINGIN-2
22.	H-330	TANGKI KATION EXCHANGER
23.	L-331	POMPA ANION EXCHANGER
24.	H-340	TANGKI ANION EXCHANGER
25.	A-341	TANGKI PENAMPUNG AIR DIMENARALISASI
26.	L-342	POMPA BOILER
27.	B-350	BOILER
28.	P-360	COOLING TOWER
29.	L-361	POMPA RECYCLE AIR PENDINGIN
30.	F-370	TANGKI PENYIMPAN DOWTHERM
31.	L-371	POMPA DOWTHERM
32.	F-372	TANGKI RECYCLE DOWTHERM
33.	L-373	POMPA RECYCLE DOWTHERM
34.	P-380	COOLER DOWTHERM
35.	L-381	POMPA DOWTHERM-2

Digambar Oleh :
Mochammad Arip Pancar Agung (21031010016)

DOSEN PEMBIMBING : Ir. Sani, MT

**FLWSHEET UTILITAS PRA RANCANGAN PABRIK ASAM NITRAT DARI AMMONIA DAN UDARA
DENGAN PROSES OSTWALD**



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