

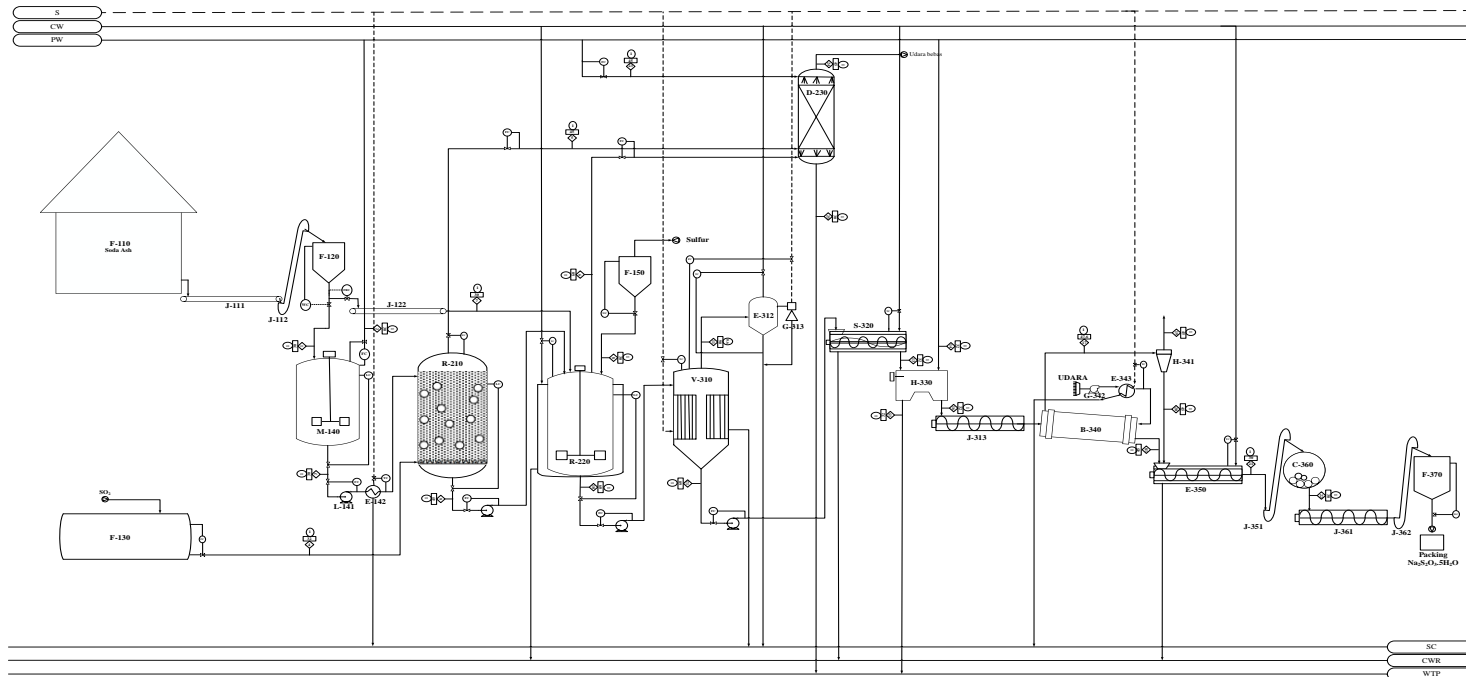


PRA RENCANA PABRIK

“SODIUM THIOSULFATE PENTAHYDRATE DENGAN PROSES AERASI KAPASITAS 40.000 TON/TAHUN”

I. Flowsheet Proses

PRA RANCANGAN PABRIK SODIUM THIOSULPHATE PENTAHYDRATE (  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  ) DARI SODA ASH, SULFUR DIOKSIDA DAN SULFUR DENGAN PROSES AERASI KAPASITAS 40.000 TON/TAHUN



**Keterangan :**

- Temperature : 9°C
- ◊ Aliran massa : Kg/jam
- Tekanan : atm
- ⊖ Steam : 148°C
- ⊕ Steam Condensate
- ⊖ CW Cooling Water
- ⊕ CWR Cooling Water Return
- ⊖ PW Process Water
- ⊕ PWT Water Treatment Plant

32 (F-370)	Silo Sodium Thiosulfate
31 (J-362)	Bucket Elevator-3
30 (J-361)	Screw Conveyor-2
29 (C-360)	Ball Mill
28 (J-351)	Bucket Elevator-2
27 (E-350)	Cooling Conveyor
26 (E-343)	Heater-2
25 (G-342)	Blower
24 (H-341)	Cyclone
23 (B-340)	Rotary Dryer
22 (J-333)	Screw Conveyor-1
21 (H-330)	Centrifuge
20 (S-320)	Crystallizer
19 (G-313)	Steam Jet Ejector
18 (E-312)	Kondensor
17 (L-311)	Pompa-4
16 (A-310)	Evaporator
15 (D-230)	Scrubber
14 (L-221)	Pompa-3
13 (R-220)	Reaktor
12 (L-211)	Pompa-2
11 (R-210)	Bubble Reactor
10 (E-142)	Heater-1
9 (L-141)	Pompa-1
8 (M-140)	Tangki Peleburan
7 (F-130)	Silo sulfur
6 (F-130)	Tangki Gas Sulfur Dioxide
5 (F-120)	Silo Soda Ash
4 (C-122)	Ball Conveyor-2
3 (J-112)	Bucket Elevator-1
2 (J-111)	Ball Conveyor-1
1 (C-101)	Crane Soda Ash

No. Kode Nama Alat

FlowSheet  
PABRIK SODIUM THIOSULPHATE  
PENTAHYDRATE DENGAN  
PROSES AERASI

NAMA : NUNGKI MELASARI  
NPM : 190310106031

Scale 1 : 100

DOSEN PEMBIMBING : TTD :  
Dr. T. E. Dyah Suci P., M.T

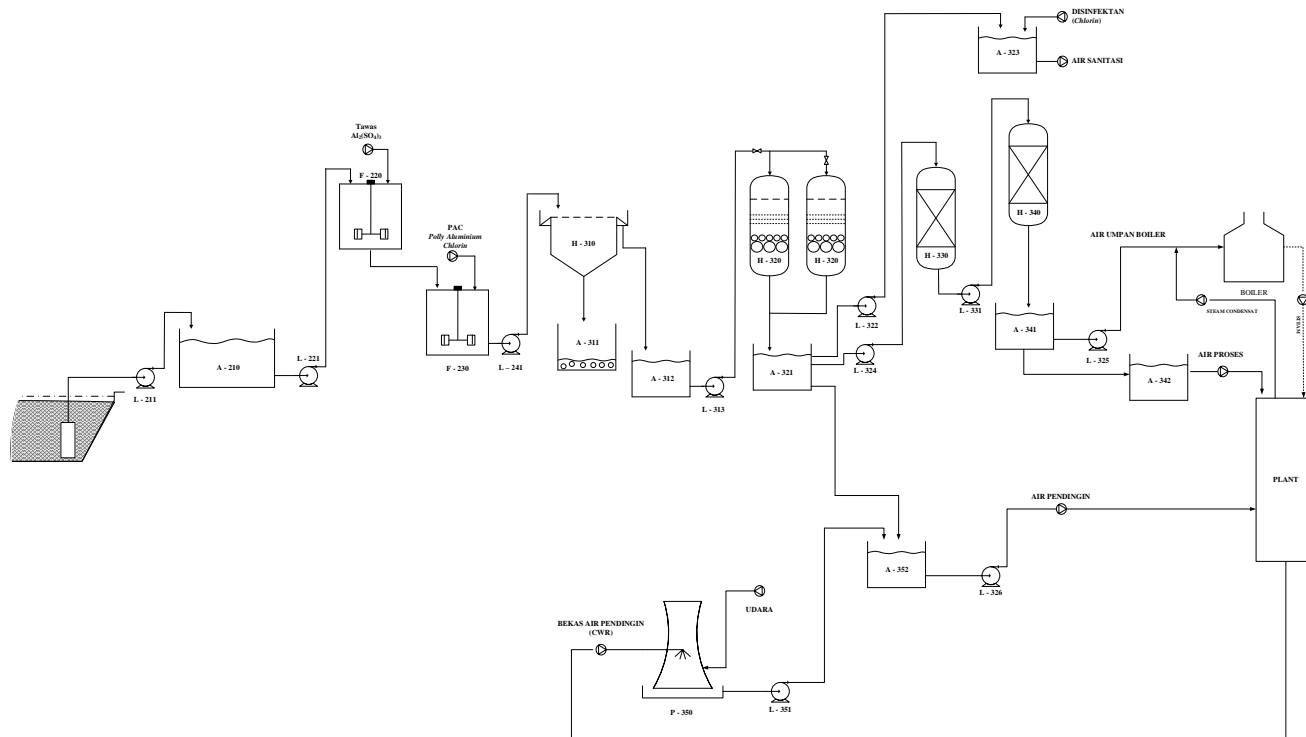
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UNIVERSITAS PEMBANGUNAN NASIONAL  
"VETERAN"  
JAWA TIMUR  
2024

Komponen	Aliran (Kg/jam)																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
$\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$																										
$\text{Na}_2\text{S}_2\text{O}_3$										3285,9403		3285,9403	65,7188		64,4044	0,0131	1,3012	0,0001	0,0130	1,3142	1,3142					
$\text{NaHSO}_3$						2276,7342				113,8367		113,8367	113,8367		111,5600	2,2767	0,0228	2,2540	0,0002	0,0225	2,2765	2,2765				
$\text{Na}_2\text{CO}_3$	1221,3250		1221,3250			61,0663	1051,5914			10,4118		10,4118	10,4118		10,4118	0,1041	10,3077	0,0010	0,1031	10,4108	10,4108					
$\text{NaCl}$	2,4500		2,4500			2,4500	2,1095			4,5595		4,5595	4,5595		4,5595	0,0456	4,5139	0,0005	0,0451	4,5591	4,5591					
$\text{H}_2\text{O}$	1,2250	4761,8873	4763,1123			4566,0872	1,0548	0,6662		4754,9819	1259,3007	3495,6812	1675,5317	1466,0903	3078,7896	62,8324	60,3283	2,5042	60,3283		2,5042	2,5042	952,6001		952,6001	
$\text{SO}_2$				1415,0778	14,0107																				0,0000	14,0107
$\text{CO}_2$					481,6168								457,5360												0,2817	938,8711
$\text{O}_2$				1,4165	1,4165																				1,4165	
S								665,5069																		
TOTAL	1225,0000	4761,8873	5986,8873	1416,4943	497,0440	6906,3376	1054,7556	666,1731	457,5360	8169,7303	1259,3007	6910,4296	6910,4296	1466,0903	3254,7540	5121,7659	110,9176	5010,8483	60,8342	50,0834	5060,9317	5060,9317	952,6001	1,6982	1905,4819	



## II. Flowsheet Utilitas

### FLWSHEET UTILITAS UNIT PENGOLAHAN AIR



24	(L-351)	Pompa Cooling Tower
23	(P-350)	Cooling Tower
22	(A-341)	Bak Penampung Air Demineralisasi
21	(A-352)	Bak Penampung Air Pendingin
20	(L-326)	Pompa Air Pendingin
19	(L-325)	Pompa Air Umpan Boiler
18	(H-340)	Anion Exchanger
17	(L-331)	Pompa Anion Exchanger
16	(H-330)	Kation Exchanger
15	(L-324)	Pompa Kation Exchanger
14	(A-323)	Bak Penampung Air Sanitasi
13	(L-322)	Pompa Bak Sanitasi
12	(A-321)	Bak Penampung Air Bersih
11	(H-320)	Sand Filter
10	(L-313)	Pompa Sand Filter
9	(A-312)	Bak Penampung Air Jernih
8	(A-311)	Bak Penampung Flok
7	(H-310)	Clarifier
6	(L-241)	Pompa Clarifier
5	(F-230)	Tangki Flokulasi
4	(F-220)	Tangki Koagulasi
3	(L-221)	Pompa Tangki Koagulasi
2	(A-210)	Bak Penampung Air Sungai
1	(L-211)	Pompa Air Sungai
No.	Kode	Nama Alat
FLWSHEET UTILITAS UNIT PENGOLAHAN AIR		
NAMA : NUNGKI MELO SARI		
NPM : 19031010031		
Skala 1 : 100		
DOSEN PEMBIMBING :		TTD :
Dr. T. Ir. Dyah Suci P., M.T		
PROGRAM STUDI TEKNIK KIMIA FAKULTAS TEKNIK DAN SAINS UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN" JAWA TIMUR 2024		