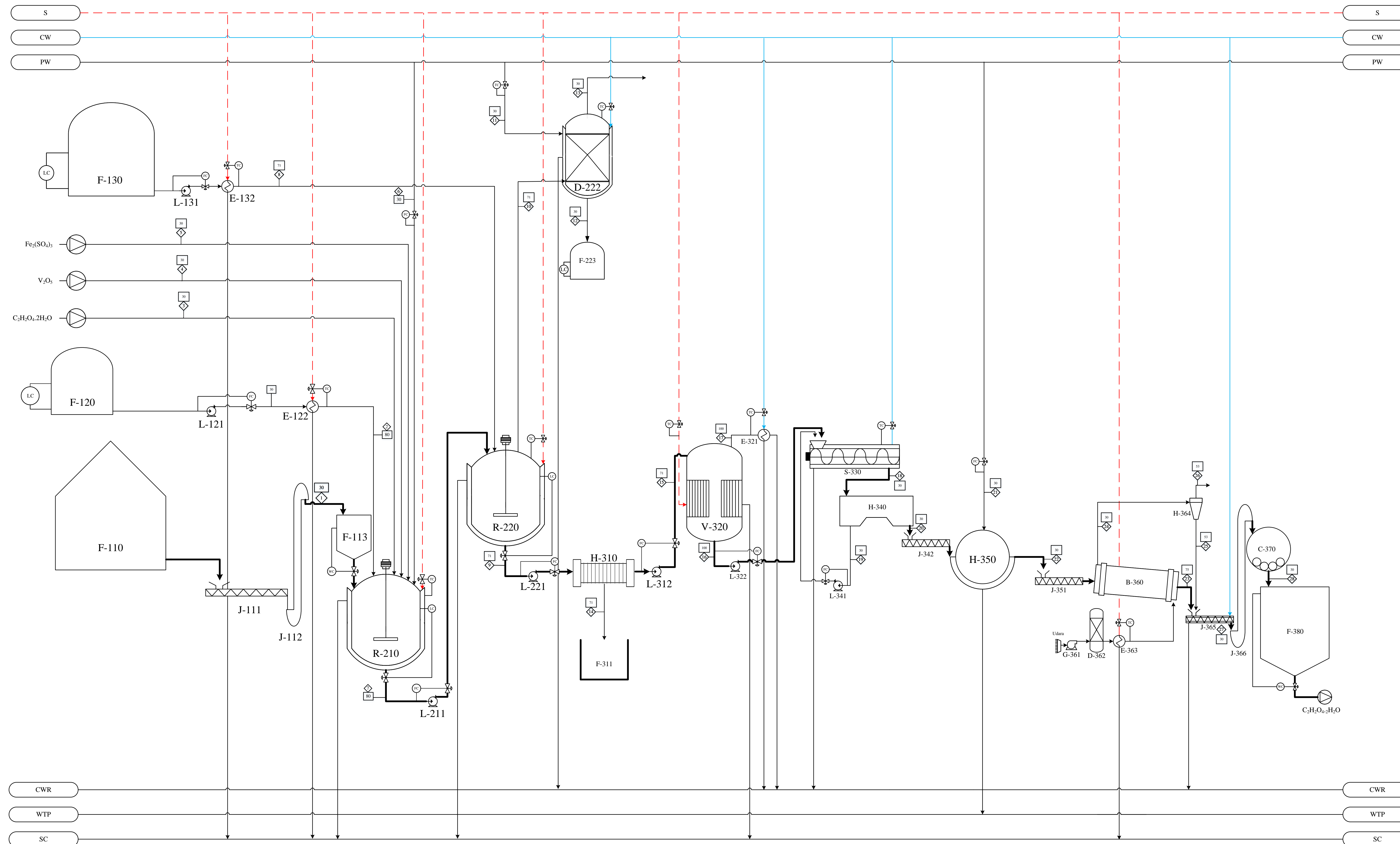


PABRIK ASAM OKSALAT DIHIDRAT DARI TEPUNG BIJI SORGUM DENGAN PROSES OKSIDASI ASAM NITRAT



| | | | |
|-----|-------------------------|---|-----------------------|
| CWR | Cooling Water Return | ◇ | Aliran Massa (Kg/Jam) |
| WTP | Water Treatment Process | □ | Suhu (°C) |
| SC | Steam Condensate | ○ | Tekanan (Atm) |
| PW | Process Water | | |
| CW | Cooling Water | | |
| S | Steam | | |

| NO | KODE ALAT | NAMA ALAT |
|----|-----------|---|
| 1 | F-110 | GUDANG PENYIMPANAN TEPUNG BIJI SORGUM |
| 2 | J-111 | SCREW CONVEYOR 1 |
| 3 | J-112 | BUCKET ELEVATOR 1 |
| 4 | F-113 | HOPPER TEPUNG BIJI SORGUM |
| 5 | F-120 | TANGKI PENYIMPANAN H ₂ SO ₄ |
| 6 | L-121 | POMPA H ₂ SO ₄ KE HEATER |
| 7 | E-122 | HEATER H ₂ SO ₄ |
| 8 | R-210 | REAKTOR HIDROLISIS |
| 9 | L-211 | POMPA REAKTOR HIDROLISIS KE RDVF |
| 10 | F-130 | TANGKI PENYIMPANAN HNO ₃ |
| 11 | L-131 | POMPA HNO ₃ KE HEATER |
| 12 | E-132 | HEATER HNO ₃ |
| 13 | R-220 | REAKTOR OKSIDASI |
| 14 | L-221 | POMPA REAKTOR OKSIDASI KE FILTER PRESS |
| 15 | D-222 | ABSORBER |
| 16 | F-223 | TANGKI PENAMPUNG HNO ₃ DARI ABSORBER |
| 17 | H-310 | FILTER PRESS |
| 18 | F-311 | BAK PENAMPUNG CAKE FILTER PRESS |
| 19 | L-312 | POMPA FILTRAT FILTER PRESS KE EVAPORATOR |
| 20 | V-320 | EVAPORATOR |
| 21 | E-321 | CONDENSOR |
| 22 | L-322 | POMPA EVAPORATOR KE CRYSTALLIZER |
| 23 | S-330 | CRYSTALLIZER |
| 24 | H-340 | CENTRIFUGE |
| 25 | L-341 | POMPA RECYCLE MOTHER LIQUOR |
| 26 | J-342 | SCREW CONVEYOR 2 |
| 27 | H-350 | ROTARY DRUM VACUUM FILTER |
| 28 | J-351 | SCREW CONVEYOR 3 |
| 29 | B-360 | ROTARY DRYER |
| 30 | G-361 | BLOWER |
| 31 | D-362 | MOLECULAR SIEVE TRAY |
| 32 | E-363 | HEATER |
| 33 | H-364 | CYCLONE |
| 34 | J-365 | COOLING CONVEYOR |
| 35 | J-366 | BUCKET ELEVATOR 2 |
| 36 | C-370 | BALL MILL |
| 37 | F-380 | SILO ASAM OKSALAT DIHIDRAT |

Digambar Oleh :

| | |
|--------------------|-------------|
| Ian Yusuf Syaputra | 18031010096 |
|--------------------|-------------|

Dosen Pembimbing : IR. ISNI UTAMI, MT

FLOWSHEET PABRIK ASAM OKSALAT DIHIDRAT DARI TEPUNG BIJI SORGUM DENGAN PROSES OKSIDASI ASAM NITRAT KAPASITAS 40.000 TON/TAHUN

PROGRAM STUDI TEKNIK KIMIA
FAKULTAS TEKNIK
UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN" JAWA TIMUR
2022

| 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 | 26 | 27 | 28 | |
| H ₂ O | | | | | | 698.2849 | 345.0280 | 1112.7595 | 1139.8562 | | 1589.6564 | 810.7248 | | 79.7899 | 1060.0662 | 789.4739 | | 789.4739 | 652.3785 | 137.0954 | 5089.3843 | 522.6480 | 53.7792 | 468.8687 | | | | | |
| C ₆ H ₁₀ O ₅ | 3244.1968 | | | | | | 64.8839 | | 64.8839 | | | | | 4.5419 | 60.3421 | 60.3421 | | 60.3421 | 57.3250 | 3.0171 | | 0.0603 | 0.0573 | 0.0030 | 0.0030 | 0.0000 | 0.0603 | 0.0603 | |
| Protein | 251.3609 | | | | | | 251.3609 | | 251.3609 | | | | | 251.3609 | | | | | | | | | | | | | | | |
| Lemak | 132.7663 | | | | | | 132.7663 | | 132.7663 | | | | | 9.2936 | 123.4727 | 123.4727 | | 123.4727 | 117.2990 | 6.1736 | | | | | | | | | |
| Serat Kasar | 70.1125 | | | | | | 70.1125 | | 70.1125 | | | | | 70.1125 | 821.3225 | | | 821.3225 | 780.2564 | 41.0661 | | 0.8213 | 0.7803 | 0.0411 | 0.0407 | 0.0004 | 0.8209 | 0.8209 | |
| C ₆ H ₁₂ O ₆ | | | | | | | 3532.5699 | | 883.1425 | | | | | 61.8200 | | 821.3225 | | 821.3225 | 780.2564 | 41.0661 | | 0.8213 | 0.7803 | 0.0411 | 0.0407 | 0.0004 | 0.8209 | 0.8209 | |
| Fe ₂ (SO ₄) ₃ | | | | | 2.0341 | | 2.0341 | | 2.0341 | | | | | 2.0341 | | | | | | | | | | | | | | | |
| V ₂ O ₅ | | | | 0.0203 | | | 0.0203 | | 0.0203 | | | | | 0.0203 | | | | | | | | | | | | | | | |
| C ₂ H ₂ O ₄ ·2H ₂ O(aq) | | | 20.3414 | | | | 20.3414 | | 5584.1390 | | | | | 390.8897 | 5193.2492 | 5193.2492 | | 103.8650 | 98.6717 | 5.1932 | | 0.1039 | 0.0987 | 0.0052 | 0.0051 | 0.0001 | 0.1038 | 0.1038 | |
| C ₂ H ₂ O ₄ ·2H ₂ O(s) | | | | | | | | | | | | | | | | | | 5089.3843 | | 5089.3843 | | 5053.0315 | 4800.3799 | 252.6516 | 250.1251 | 2.5265 | 5050.5050 | 5050.5050 | |
| H ₂ SO ₄ | | 203.4140 | | | | | 203.4140 | | 203.4140 | | | | | 14.2390 | 189.1750 | 189.1750 | | 189.1750 | 179.7163 | 9.4588 | | 0.1892 | 0.1797 | 0.0095 | 0.0094 | 0.0001 | 0.1891 | 0.1891 | |
| HNO ₃ | | | | | | | | 10014.84 | | | | | 5452.5216 | | | | | | | | | | | | | | | | |
| NO | | | | | | | | | | 1324.7137 | | | 2622.9331 | | | | | | | | | | | | | | | | |
| NO ₂ | | | | | | | | | | 6093.6831 | | | 121.8737 | | | | | | | | | | | | | | | | |
| H ₂ O (uap) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 3698.4366 | 203.4140 | 20.3414 | 0.0203 | 2.0341 | 698.2849 | 4622.5314 | 11127.595 | 8331.7298 | 7418.3968 | 1589.6564 | 6263.2464 | 2744.8068 | 884.1021 | 7447.6277 | 7177.0354 | 270.5923 | 7177.0354 | 1885.6468 | 5291.3886 | 5089.3843 | 5576.8542 | 4855.2751 | 721.5790 | 250.1832 | 471.3958 | 5105.4583 | 5105.4583 | |