BAB VI

NERACA PANAS

Basis perhitungan : 1 jam operasi

Satuan operasi : kJ/jam

Temperatur basis : 25^{o}C

6.1 *Mixer* (R-201)

Tabel 6. 1 Neraca Panas pada Mixer

Komponen	Q (panas) Masuk (kJ/jam)		Q (panas) keluar (kJ/jam)	
	Q1	Q2	Q pelarutan	Q3
H2O	3619,3783	15511,6215		18557,3119
HCL	1034,5129	-		1003,3865
Q pelarutan				
Sub Total	**4653,8913**	**15511,6215**		**25125,7003**
Total	**20165,5129**			**20165,5129**

6.2 Heater

Tabel 6. 2 Neraca Panas pada Heater

Komponen	Q (panas) Masuk (kJ/jam)		Q (panas) keluar (KJ/jam)
	Q3	Q *Supply*	Q4
H2O	8914,9074	39912,1559	4462,4051
HCL	1034,5129	-	5235,1711
Sub Total	**9949,4203**	**39912,1559**	**49861,5763**
Total	**49861,5763**		**49861,5763**

6.3. *Reaktor*

Tabel 6. 3 Neraca Panas Reaktor

Komponen	Q (panas) Masuk (kj/J)		Q (panas) keluar (Kg/J)
	Q4	Q 5	Q 6
H_2O	95561,1631	-	100562,6796
HCL	5235,1711	-	287,9344
Fe_2O_3	-	157,1734	157,1734
$Mg(Cl)_2$	-	-	2541,8698
$Mg(OH)_2$	-	2650,3237	145,7678
SiO_2	-	1775,8848	17775,8848
CaO	-	292,6022	292,6022
Q reaksi	-		-4689,3511
Q lepas	-4597,7575		-
Sub Total	**96198,5766**	**4875,9842**	**101074,5609**
Total	**101074,5609**		**101074,5609**

1.4. *Heater*

Tabel 6. 4 Neraca Panas pada Heater

Komponen	**Panas Masuk (kJ/jam)**		**Panas Keluar (kJ/jam)**
	Q 6	Q *Supply*	Q 7
H_2O	10303235,9923	2316280,7948	12540682,0361
HCL	14545,2889		39019,8418
$Mg(Cl)_2$.	50695,7957		105055,9938
Sub Total	**10368477,0769**	**2316280,7948**	**12684757,8717**
Total	**12684757,8717**		**12684757,8717**

6.5. *Evaporator 1 (V-404)*

Tabel 6. 5 Neraca Panas pada Evaporator

Komponen	Q (panas) Masuk (kj/J)	Q (panas) keluar (Kg/J)	
	Q7	Q 8	Q 9
$H_2O_{(l)}$	119952,80888	-	24664,02417
$HCL_{(l)}$	751,20417	-	-
$Mg(Cl)_{2\ (l)}$	-	-	8521,36953
$H_2O_{(g)}$	-	129486,12691	-

HCL(ᵍ)	-	993,81714	-
Q laten H_2O	-	12176,53136	-
Q laten HCL	-	123,61374	-
Q *Steam*	48758,34744	-	-4689,3511
Sub Total	**175965,48285**	**142780,08915**	**33185,39371**
Total	**175965,48285**	**175965,48285**	

6.6. *Evaporator 2*

Tabel 6. 6 Neraca Panas pada Evaporator 2

Komponen	Q (panas) Masuk (kJ/jam)	Q (panas) keluar (kJ/jam)	
	Q 9	Q 10	Q 11
H2O	24664,02417	20717,78030	3946,24387
$Mg(Cl)_2$	8521,36953	-	8049,19028
Q *Steam*	-4721,7926	0	-
Sub Total	**32713,21445**	**20717,78030**	**11995,43415**
Total	**32713,21445**	**32713,21445**	

6.7. *Rotary Dryer*

Tabel 6. 7 Neraca Pada pada Rotary Dryer

Komponen	Q (panas) Masuk (kJ/jam)	Q (panas) keluar (kJ/jam)	
	Q 11	Q 12	Q 13
H2O	645319,09347	3314,83583	705,74333
$Mg(Cl)_2$	560352,82447	0	9533,25387
Q *Steam*	0	0	11921118,08491
Sub Total	**32713,21445**	**3314,83583**	**11995,43415**
Total	**32713,21445**	**1202357,08211**	