



洗涤塔填料层设计说明

- 入口风量 ←
- 入口PAA浓度 ←
- 入口NO₂浓度 ←
- 循环水量 ←
- 排液率 ←
- 大气压 ← 循环水温度 ←
- 入口静压 ←
- 废液池PH值 ←
- 洗涤液中NaOH浓度 ←
- 塔径 ←
- 填料层高度 ←
- 安全系数 ←

Scrubbing Peracetic Acid using Caustic Soda			
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Inlet Gas Flow	4,012 Am ³ /h	Peracetate in Blowdown	32.2% (as Na salt)
Inlet PAA Concentration	13,658 ppm _v	Free Acid in Blowdown	0.227%
	= 46,340 mg/Nm ³	HTU _{PAA}	288 mm
Inlet CO ₂ Concentration	1,000 ppm _v	NTU _{PAA}	8.94
	= 1,964 mg/Nm ³	Outlet PAA Concentration	112 ppm _v
Liquid Recirculation Rate	15.0 m ³ /h		= 381 mg/Nm ³
Blowdown Rate	0.6 m ³ /h	PAA Removal Efficiency	99.2%
Liquid Temperature	40 °C	Packing Type	Q-PAC
Atmospheric Pressure	1013 mbar	Pressure Gradient	0.9 mbar/m
Inlet Static Pressure	0 mbar	Packing Pressure Drop	2.7 mbar
pH in Sump	10.3	Liquid Holdup	4.7%
Make-up NaOH Concn.	25%	Packing Volume	1.5 m ³
Tower Diameter	800 mm	Liquid Residence Time	17 sec
Packing Height	3,000 mm	NaOH Usage	89 kg/h
Safety Factor	1.25		279 L/h

- 用NaOH吸收过氧乙酸的洗涤塔填料层计算书
- 废液中过氧乙酸含量
- 废液中游离酸含量
- 质传单元高度
- 质传单元数
- 出口PAA浓度
- PAA去除率
- 填料型号
- 填料层压力降梯度
- 填料层压力降
- 填料层持液率
- 填料体积
- 液体停留时间
- NaOH消耗量

请注意：
 风量及浓度单位中
 N与A代表了不同状态下的气体体积：
 N—标态
 A—时态

Gas Flow Rate	3,500 Nm ³ /h	Cross-Section Area	0.5 m ²
	= 2,805 mol/min	Gas Molecular Weight	29 g/mol
Peracetic Acid Removed	35.28 mol/min	Gas Density	1.133 kg/m ³
	161.19 kg/h	Liquid Density	1,155 kg/m ³
blowdown	9.3 L/min	Superficial Gas Velocity	2.2 m/s
[CH ₃ CO ₃ H]+[CH ₃ CO ₂]	3.78351 mol/L	Gas Loading	9,048 kg/m ² -h
[CH ₃ CO ₂]	3.75370 mol/L	Liquid Loading	34 m ³ /m ² -h
[CH ₃ CO ₃ H]	3.0E-02 mol/L	HTU _{CO₂}	2090 mm
x ₁	536.66 ppm (molar)	[H ⁺]	5.01E-11 mol/L
x _{1,CO₂}	1.20E-07 mol/mol	T	313.2 K
CO ₂ Removed	1.36E+00 mol/min	P _T	1.00 atm
[CO ₂]+[HCO ₃]+[CO ₃ ⁻]	1.46E-01 mol/L	K _w	2.84E-14 mol/L ²
[CO ₂]	6.67E-06 mol/L		
[HCO ₃]	6.69E-02 mol/L		
[CO ₃ ⁻]	7.91E-02 mol/L		
NaHCO ₃	0.56%	K ₁ (mol/L)	6.31E-09
Na ₂ CO ₃	0.84%	K ₂ (mol/L)	N/A
free NaOH	0.0008%	H (atm/mole fraction)	0.214
Total Dissolved Solids	38.21%	y ₁ (mg/Nm ³)	46,340
[Na ⁺]	3.98E+00 equiv/L	y ₂ (mg/Nm ³)	381
NaHCO ₃ Saturation Index	-0.5	Removal Efficiency	99.2%
Na ₂ CO ₃ Saturation Index	-0.7	y ₁ [*] (mg/Nm ³)	390
Sodium lost in blowdown	8.54E-01 kg/min	y ₂ [*] (mg/Nm ³)	375
Make-up NaOH Density	1.27	(y-y [*]) _m (mg/Nm ³)	5,139
Caustic reacting with PAA	94% of total	NTU	8.94
Alkali Exhaustion per Pass	38%		1.15