

Estimation of the treatment costs for raw leachate per m³ for 150 m³/d RO Plant (2 stages)

Location: Meece landfill

05.03.2024

Application : RO 150 m³/d 2-stages

Feed Reverse Osmosis : approx. 50,000 m³/a

pcs.	electrical consumer	installed power (kW)	total installed power (kW)	consumption at operating point (kW)	operation hours per day	operation factor 1 = 100 %	average power consumption (kW)	power consumption	
								daily (kWh)	annual (kWh)
	Reverse Osmosis (RO)								
1	feed pump	2,20	2,20	1,76	23	0,95	1,67	40,5	14,775
1	high pressure pump 1st stage	22,00	22,00	17,60	23	0,80	14,08	404,8	141,680
1	circulation pump 1st stage	13,00	13,00	10,40	23	0,95	9,88	239,2	83,720
1	high pressure pump 2nd stage	11,00	11,00	8,80	23	0,95	8,36	202,4	70,840
0	high pressure pump 3rd stage	7,50	0,00	0,00	23	0,95	0,00	0,0	0
1	dosing pump sulfuric acid	0,10	0,10	0,09	23	0,95	0,08	2,0	708
0	dosing pump caustic soda	0,10	0,00	0,00	23	0,95	0,00	0,0	0
1	dosing pump antiscalant	0,10	0,10	0,09	23	0,95	0,08	2,0	708
1	mixing pump (GIP)	0,70	0,70	0,62	0,5	0,02	0,01	0,3	112
1	water heater	12,00	12,00	10,56	0,4	0,02	0,21	4,2	1,542
1	electric controll cabinet	1,50	1,50	1,32	24	1,00	1,32	31,7	11,563
1	compressed air station	2,20	2,20	1,94	2	0,08	0,16	3,9	1,413
1	heating controll cabinet room	3,00	3,00	1,50	4	0,17	0,25	6,0	2,190
1	heating engine room	3,00	3,00	1,50	4	0,17	0,25	6,0	2,190
1	air condition	4,00	4,00	3,52	4	0,17	0,59	14,1	5,139
2	ventilation	0,95	1,90	1,67	4	0,17	0,28	6,7	2,441
6	light	0,04	0,24	0,24	2	0,08	0,02	0,5	175
0	CO2 Stripping tower	2,20	0,00	0,00	23	0,80	0,00	0,0	0
	Sum		76,94	61,60			37,25	964	339,198

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power consumption per m³ input (kWh)	6,78
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