

## Appendix S: Capital and Operating Costs

### Equipment Cost

Equipment costs were based on vendor estimates from Rousselet-Robatel for the contactors, and matche.com and alibaba.com for the rest of the units

Equipment	Direct Unit Cost	Total Unit Cost	Number of Units	Total Cost
Shearer	20000	44000	1	44,000
Dissolver	65000	143000	1	143,000
Crystallizer	53201	117041	1	117,041
Clarifier	11000	24200	1	24,200
Centrifugal contactor	170000	374000	32	11,968,000
Surge Tank	21479	47254	4	189,015
Mixing Tank	25080	55177	4	220,706
Rotary Kiln	1100000	2420000	1	2,420,000
Eletrolytic Cell	21000	46200	1	46,200
Heat Exchanger	2500	5500	3	16,500
Pumps	575	1266	15	18,985
<b>Total</b>				<b>15,207,647</b>

Factors accounting for electrical, instrumentation, piping, and installation are taken into account based on the direct unit cost [1]