

Equipment List Pilot Plant/ Osaka

Clean room :	1	VESSEL : Glass-lined 1000L	1	CENTRIFUGE : Stainless Steel (36 inch)	1	DRYER : DBL Cone	1	Cutter Mill
	1	VESSEL : Stainless Steel 1000L	1	DRYER : Tray Dryer	1	Pin Mill		

Clean zone :	1	VESSEL : Glass-lined 200L	1	CENTRIFUGE : Stainless Steel (30 inch)
	1	VESSEL : Stainless Steel 200L	1	DRYER : Tray Dryer

1. VESSEL	(m3)											(Liter)
Reactor Capacity	Total	2000	1500	1200	1000	500	200	100	75	50	Total	
Glass-lined	12.65	1	-	3	5	3	2	1	-	1	16	
Stainless Steel	9	1	2	-	2	3	2	1	-	-	11	
Hastelloy		-	-	-	-	1	-	-	-	-	1	
Teflon-lined		-	-	-	-	-	-	1	1	-	2	

2. AUTOCLAVE

500L	Hastelloy Steel	1.0 MPa
500L	Stainless Steel	0.5MPa
100L	Stainless Steel	0.2 MPa

3. DISTILLATION UNIT

1	Centrifugal-flow Thin-film Vacuum Evaporator
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4. FILTER

1	Glass-lined Nutsche
3	Stainless Steel Nutsche
1	Glass-lined Vacuum
4	Stainless Steel Vacuum
1	Plate and Frame Presses (3m ²)

5. CENTRIFUGE

4	Stainless Steel (36 inch)
1	Stainless Steel (30 inch)
1	Stainless Steel (24 inch)

6. DRYER

1	DBL Cone
3	Tray Dryer
4	Vacuum Tray Dryer

7. TANK

Stainless Steel	Steel	GL	PE	Others
22	10	10	11	12

8. RESIN COLUMN

300L	200L	100L	Total
2	1	1	4

9. OTHER EQUIPMENT

1	Electro Dialyzer (Acilyzer) TM
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10. MILLING AND PACKING ROOM

2	Milling and Packing Room
2	Cutter Mill
2	Pin Mill
1	Hammer Mill
2	Electric Sieve

11. UTILITIES

Vacuum: Up to 20mm Hg absolute. Nitrogen: Bulk tankers
 Water: De-ionized Water system (3) Liquid Nitrogen cooling:
 Purified Water System (1) to - 90 °C
 Waste Treatment Unit: 730m³/day Steam heating: to 150 °C
 Brine cooling: to - 20 °C
 Water cooling Cooling Towers (2)
 Scrubber: Gas Scrubbers for acid and solvent gases (2)
 Gas Scrubbers for solvent gases (2)
 Gas Scrubbers for alkaline gases (2)