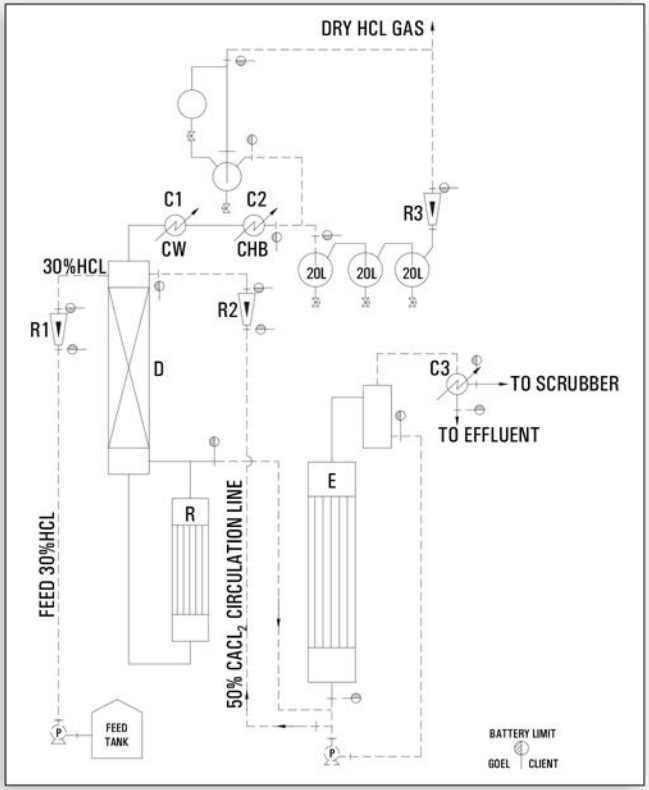
The Transparent Specialist

TECHNICAL PACKAGES

ANHYDROUS HCl GAS GENERATOR - CALCIUM CHLORIDE ROUTE



Working Principle:

Hydrochloric acid and water form a maximum boiling point azeotrope at 11O°C corresponding to a concentration of 20.24%; (w/w) HCl. By adding concentrated $CaCl_2$ solution to commercial hydrochloric acid the azeotrope point is eliminated and the entire' HCl becomes available for liberation by distillation. Anhydrous HCl gas generation through Calcium Chloride Route is the most environmental friendly technique.

Process Description:

The above principle- is achieved in practice by feeding metered quantities of commercial HCl and 50% $CaCl_2$-solution to a stripping column with a steam heated re-boiler at bottom. The effluent from bottom of the column is a dilute acidic calcium chloride solution which is concentrated to 50% in a evaporator and re-used. The vapor leaving is condensed stage wise with cooling water and chilled brine as coolant. The relatively dry gas passes through a mist eliminator and then through a rotameter to the point of consumption.

Raw material utility requirements:

The indicative requirements for 20 Kg/hr HCl gas generator are given below.

1.	30-32 % HCl, (Kg/hr)	:	66
2.	Cooling water at 30 °C (M^3/hr)	:	4
3.	Chilled brine at -10 °C (M^3/hr)	:	3
4.	Steam at 6 Kg/cm^2 (g)	:	150

LEGEND	LEGEND	LEGEND
R - REBOILER	C2 - SECONDARY CONDENSER	CW - COOLING WATER
D - COLUMN	R1 - FEED HCL ROTAMETER	CHB - CHILLED BRINE
E - EVAPORATOR	R2 - FEED $CACL_2$ ROTAMETER	C3 - CONDENSER
C1 - PRIMARY CONDENSER	R3 - DRY HCL GAS ROTAMETER	P - PUMP