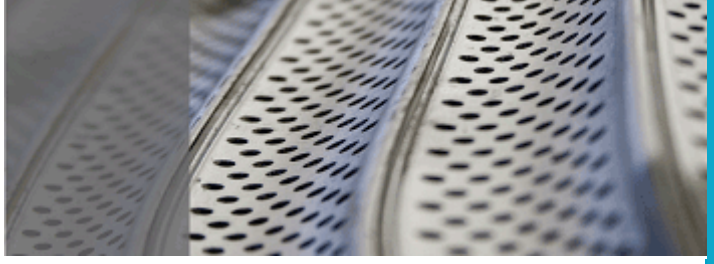
CHEMCUT

Regeneration

Models 903, 907C, 907H



Products

907C Shown

The Chemcut Model 903 and Model 907 regeneration systems provide continuous regeneration of copper and ferric (iron) chloride etchants. The Model 903 and Model 907C utilize chloride gas and hydrochloric acid. The Model 907H can be used with hydrochloric acid and either hydrogen peroxide or sodium chlorate solution.

When connected to an etching system, they provide a constant etching rate while dramatically reducing or eliminating production stops to change etching solutions. Etching solutions changes are typically reduces by a factor of four or more.

Both systems continuously monitor the etchant and automatically inject the chemicals as needed to maintain a constant production rate. A digital display of the oxidation-reduction potential provides the operator with an indication of the bath condition. An automatic specific gravity control maintains a constant etchant density. Excess etchant produced by the regeneration process is automatically discharged to the facility's spend solution tank.

Both models include a recirculation pump to keep the solution mixed and provide flow to the system's venturi pump which uses a vacuum to add all necessary chemicals to the etching solution. No pressure connections are necessary.

A chlorine gas flow meter and vacuum regulator are included with the chlorine models.

The Model 903 is only available for chlorine gas regeneration and has a useable capacity of 2000 ounces (57 kg) of copper per hour when regenerating copper chloride etchant. When regenerating iron chloride (etching steel), the capacity is 1200 ounces (34 kg) of iron per hour.

The Model 907H when used with hydrogen peroxide to regenerate copper chloride and has a usable capacity of 3000 ounces (85 kg) per hour. Hydrogen peroxide cannot be used with ferric chloride.

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903 and 907 Series Regeneration Systems

Model	903	907C	907H
Oxidizer Material	Chlorine Only	Chlorine	Hydrogen Peroxide Or Sodium Chlorate
Nominal Capacity:			
Copper	125 pounds/hr (56.7kg/hr)	62 pounds/hr (28.1kg/hr)	185 pounds/hr (85Kg/hr)
Iron	75 pounds/hr (34 kg/hr)	37 pounds/hr (16.8 kg/hr)	94 pounds per Hour Sodium Chlorate Only
Pump Size	7.5 HP (5.6 Kw)	5.0 HP (3.7 Kw)	
Inlet Connection Quantity x Size	2 x 4 inch FNPT	1 x 4 inch FNPT	
Outlet Connection Size	2 inch	2 inch	
Etchant Sump Capacity,Typical	37 gallons (140 liters)	32 gallons (120 liters)	
Overall Dimensions: WxDxH inch(mm)	27x38x58, (685x965x1473)	27x38x58, (685x965x1473)	
Power Required	7 KVA	4.7 KVA	

907/903 Control Panel

Chlorine Flowmeter, water and acid connections on the 907C and 903

Estimated Oxidizer and Acid Consumption

Metal Etched	Consumable	Chlorine	Hydrogen Peroxide[2]	Sodium Chlorate[3]
Copper etched with cupric chloride. Copper concentration 140 g/l, 1N free hydrochloric acid	Oxidizer	1.1 pounds/pound 1.1 kg/kg	0.16 gal/pound 1.35 l/kg	0.12 gal/pound 1.04 l/kg
	Hydrochloric Acid[1,4]	0.09 gal/pound 0.77 l/kg	0.50 gal/pound 4.18 l/kg	0.50 gal/pound 4.18 l/kg
Iron or steel etched with ferric chloride. Iron concentration 190 g/l, and 0.5% w/w free hydrochloric acid	Oxidizer	1.9 pounds/pound 1.9 kg/kg	Peroxide Regeneration is not compatible.	0.21 gal/pound 1.77 l/kg
	Hydrochloric Acid[1,4]	0.012 gal/pound 0.1 l/kg		0.65 gal/pound 5.36 l/kg

1. Hydrochloric Acid concentration is 20° Be, 32% w/w, 1.161 specific gravity.
2. Hydrogen Peroxide concentration is 35% w/w, 1.133 specific gravity.
3. Sodium Chlorate solution is 40% w/w, 1.34 specific gravity.
4. Hydrochloric acid consumption increases with the increase in Normality or free acid level and ventilation losses.

CHEMCUT ★★★★★★★★★ CORPORATION

500 Science Park Road
State College, PA 16803 USA
Phone: +1 814 272 2800
or 800 243 6288
Fax: +1 814 272 5206
bluebox@chemcut.net

chemcut.net

Rev B2 0310