

Additional instructions Tin Filter



Stannic Tin Filtration

1. Introduction

The byproduct of depositing tin from a tin (Sn^{2+}) plating process is stannic tin (Sn^{4+}). This stannic Tin formation is greatest in a Sulfate process, less in a fluoborate bath and the least in methylsulfonic acid (MSA) system. The rate at which stannic tin is formed in a fluoborate system is 6 times larger than in a MSA process.

The gel like nature of the stannic tin causes filters and piping to clog. The result is higher operating cost due to increased brightener /additive consumption and more frequent replacement of filter media and chemistry.

Extensive research enabled Hendor to develop a system to remove stannic Tin from a plating process. In production, these systems will maintain the Sn^{4+} concentration at an acceptable low level.

The system consists of a magnetic drive pump, bag filter housing filled with PP micro fibers, precoat tank, flow meter and valves.

The system is also available with automatic flow control.

Before using the systems, the filter media must be activated.

2. Preparation of the media activator.

To prepare the media activator, add 250 ml (1/16 gallon) PVSA (Polyvinyl Sulfonic Acid technical grade, 25t% by weight) to approximately 10 l (2.5 gallons) of a solution saturated with stannic tin (spent plating bath). Mix well. Depending on the concentration of stannic tin, this should give you approximately 500 gr (1 pound) of precipitate. This precipitate is the activator for the tin filter.

3. Activating the media.

After inserting the 1micron bag in the F7A-B1 filter chamber, add 600 grams (1 1/3 pounds) of Polypropylene micro fiber. Press firmly! Add 400 grams (1 7/8 pounds) of activator and sufficient quantity de-ionized water to the precoat tank. Mix well. Open the valves of the bypass system so that the solution will re-circulate through the precoat tank. Turn the pump on until the solution turns clear. The media is now activated. Excess activator can be stored in an airtight container for future use.

4. Filter process

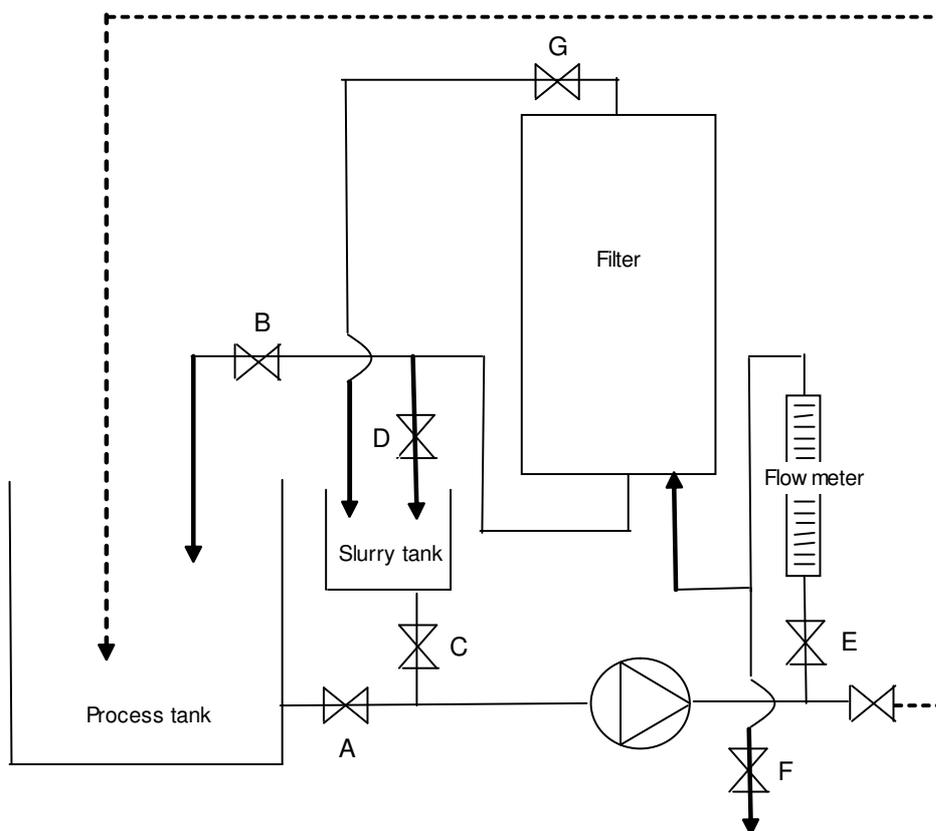
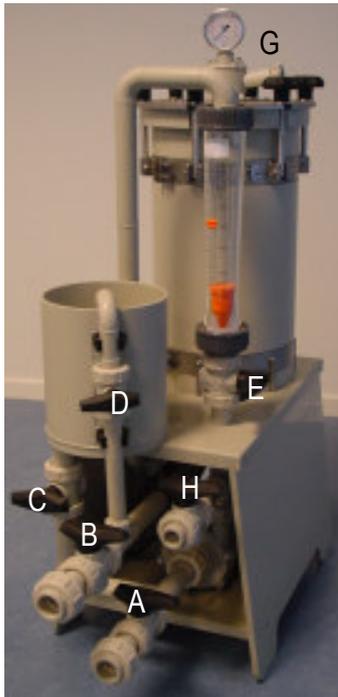
The main valves can now be opened to start the filtration process. In manual systems, the flow can be adjusted with the valve located on the discharge side of the pump. It is recommended to keep the flow at approximately 500 liters per hour (2 GPM). The relatively low flow rate ensures greater efficiencies in removing the stannic tin. Depending on the installation, the initial pressure on the gauge should be 0.2 Bar (2,9 PSI / 0,2 MPa). To enable good bath circulation during the filtration process, and to prevent heating up the process liquid valve H can be partially opened as well (see picture on back side) As stannic tin is removed from the plating process, the pressure reading should increase. When the pressure reading on the gauge has increased 0.5 Bar (7,2 PSI/ 0,05 MPa), the media needs to be replaced.

Steps 3 and 4 need to be repeated when replacing the media (step 2 on a as needed basis)

Note

All information is given in good faith but without warranty. Results may strongly depend on local operational circumstances. Figures mentioned are for reference only.





A B C D E F G H

	A	B	C	D	E	F	G	H
Start up	○	○	●	●	◐	●	○	●
Filling slurry tank / activating micro fibers	●	●	○	○	◐	●	●	●
Normal operation	○	○	●	●	◐	●	●	●
Normal operation + by pass	○	○	●	●	◐	●	●	◐
Draining filter / changing filter medium	●	●	●	●	●	○	○	●