

SPECTREX APPLICATION NOTE 11-04

HOW TO GET PARTICLE FREE WATER FOR DILUTING SAMPLES RUN ON THE SPECTREX PARTICLE COUNTER

Introduction

If the particle density of samples run on the particle counter is greater than 1000 per ml, at the 1 um level, then it is necessary to dilute in order to avoid coincident counts and to provide absolute results. The diluent water does not have to be deionized but simply particle-free to below 1 um diameter.

The method outlined below is simple, low cost and effective.

Equipment needed

A) Filters

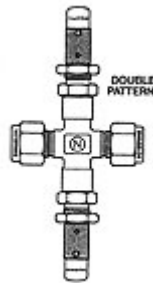
- (1) 1 um filter, Pall, part #MCY4463N1EYH13, Price: approx. \$60-70.00
- (2) 0.2 um filter, Pall, RIF 010, Price \$35.00

B) Filter Housings:

- (1) Amatek #10 housing for 1 um filter, Price \$40.00
- (2) Pall housing for 0.2 um filter, Part # MDA4463G4H13, Price \$133.00

C) Needle Valve:

- (1) Double pattern, Swagelok, Part # SS2-D, stainless, Price \$190.00



D) 1/8" OD Teflon tubing

E) Delrin fitting to adapt from 1/4 NPT to 1/8" dia. tube

F) Hook up pipes

G) Standard on/off mains water supply valve

The 1 um and 0.5 um filters are placed in series with the incoming mains water supply. The downstream needle valve is connected to the exit of the 0.5 um filter housing with Teflon tubing. The exit from the needle valve is sent to drain and the flow rate set to approximately four drops per second. Flow is set to run 24 hours a day so that algae cannot build up in the tubing. Flow rate is then adjusted to meet water requirements.

Then set the exit tubing to fill clean, 4 liter bottles which are constantly rotated so that water does not stand in them for more than two-three days. The result is consistent, particle-free water.

Depending on the quality of your water supply, the filters should be changed regularly. Here, in the San Francisco Bay area, we change filters every six months. Filters and housings can be purchased from Mensco Inc. 925-443-9800.