

Comparison of FilterCaps with Disposable Syringe Filter Disks

This Product Bulletin describes a head to head comparison of the FilterCaps with conventional, syringe type filters. This information illustrates "equivalency" information necessary for the development of "validation" requirements.

Six types of syringe filters were obtained from five different manufacturers. Table 1 lists the filters used and their physical characteristics. The FilterCap uses a polypropylene filter membrane. Since polypropylene is considered a general purpose filter material, the decision was made to conduct the evaluation using filters made with both polypropylene and 66 Nylon membranes, which are also considered general purpose filters. The 13 mm diameter was chosen because it was the closest size to the 4 mm FilterCap.

The chromatographic system used in this study consisted of an Alcott Model 708 Autosampler, an Alcott Model 760 Pump, a Linear Model UVIS 200 Detector, and a Spectra Physics Model SP4400 Integrator. The sample was a generic pain relief tablet. The tablet contains Aspirin, Acetaminophen, Salicylamide, and Caffeine, plus excipients. Six groups of two vials were prepared. In each group, one vial was filled with unfiltered tablet solution and capped with a FilterCap. The second vial was filled with a manually filtered tablet solution and capped with a standard cap. Table 2 lists the chromatographic conditions under which the samples were analyzed. Table 3 lists the average Peak Areas for each ingredient in the tablet for each filter type. The Peak Area averages for each filter type were then averaged and the standard deviation (Std. Dev.) and relative standard deviation (RSD (%)) was determined for each component in the tablet. The RSD values are all well below 2.00% indicating that there is no statistical difference between these filter types. The accompanying bar chart helps to clarify the comparison.

On the bases of this evaluation, it can be concluded that FilterCaps perform in an equivalent manner as manual syringe filtering with the sample compounds used in this study. It is expected that this will be the case in most situations where sample filtering is necessary and a "general purpose" type filter is all that is required.

Table 1: Brands of Filters Used in Comparison Study

Brand	Filter Material	Filer Size	Pore Size	Cost per Hundred
Gelman	66 Nylon	13 mm	0.45 μ M	\$135.00
Whatman	Polypropylene	13 mm	0.45 μ M	\$126.00
Whatman	66 Nylon	13 mm	0.45 μ M	\$126.00
Phenomenex	66 Nylon	13 mm	0.45 μ M	\$105.00
MSI	66 Nylon	13 mm	0.45 μ M	\$124.00
Nalgene	66 Nylon	25 mm	0.45 μ M	\$175.00
FilterCap	Polypropylene	4 mm	0.45 μ M	\$100.00

FilterCaps vs Competitive Syringe Filtering Disks

Table 2: Chromatographic Conditions

Column:	Hypersil ODS, 5 um, 150 mm X 4.6 mm ID
Mobile Phase:	30 % Methanol, 69% Water, 1% Acetic Acid
Flow Rate:	1.00 mL/min
Detection:	UV at 254 nm
Sample:	One Generic Pain Relief Tablet dissolved in 200 mL of 10% Acetic Acid Solution

Table 3: Component Peak Areas

Filter Brand	Aspirin	Acetaminophen	Salicylamide	Caffeine
FilterCap	14338545	2819975	7751346	3118807
Nalgene	14613580	2861796	7717011	3026025
Whatman pp	14552367	2814219	7757145	3094469
Phenomenex	14701984	2787791	7720145	3063713
MSI	14693167	2776538	7721370	3056118
Gelman	14358549	2823220	7736958	3100188
Whatman 66	14824229	2833469	7942161	3032148
Average	14583203.0	2816715.4	7763733.7	3070209.7
Std. Dev.	180967.4	28351.8	80236.9	35333.3
RSD (%)	1.24	1.01	1.03	1.15

