

Air Filtration - Lifetime Efficiency

Pharmaceutical Manufacturer Sees Firsthand The Higher Lifetime Efficiency of Fine Fiber Media vs. Coarse Fiber

Company Profile:

Global pharmaceutical and life sciences company with operations in eight countries and 98,000 employees worldwide.

The Situation:

Specializing in vaccine production at a western U.S. manufacturing plant, facilities engineers faced concerns of indoor air quality in “non-cleanroom” manufacturing areas. Camfil determined that the final filtration bag filters in the air handling units were using coarse fiber synthetic medias (highly electrostatically-charged to get a high initial efficiency) and were the cause for diminishing air quality early in the filters useful life. The company decided an In-Situ test (testing of air filters in systems versus in a laboratory for true operating efficiency) would be conducted to determine if the fine fiber glass media bag filters by Camfil would provide much improved and consistent indoor air quality.

The Action:

Two air handling units of equal airflow and close location (40 filters each using 100% outside air at intake) were selected to test the existing incumbent products, a Flanders Precisionaire® 85% efficiency 8-pocket final filter (24"x24"x22") with a charged synthetic media versus a Camfil Hi-Flo® 8-pocket bag filter with fine fiber media at the same rated efficiency of 85% (also 24"x24"x22"). The test was done following Eurovent Standards for in place filter testing and the competitor was invited to witness the test. Efficiency was tested at 0.4 microns – the average particle size in outside air.



The Result:

After the test bank of new filters from Flanders Precisionaire and Camfil was installed, an initial In-Situ test was run and then a follow-up six month test was conducted – both tests showed that the Camfil Hi-Flo significantly outperformed the Flanders filter.



“After tests reveal significant difference between fine fiber filter media and coarse fiber, the global company undoubtedly makes the switch to fine fiber media.”

The Proof:

After the test bank of new filters from Flanders Precisionaire® and Camfil were installed, an initial In-Situ test was run. The Flanders filter had an initial efficiency of 64% while the Camfil Hi-Flo® had an initial efficiency of 71%.

After six months (one-quarter to a third of the filters total life in the system), a second In-Situ test was conducted. The Flanders bag filter was at 22% efficiency versus 74% efficiency for the Camfil product.

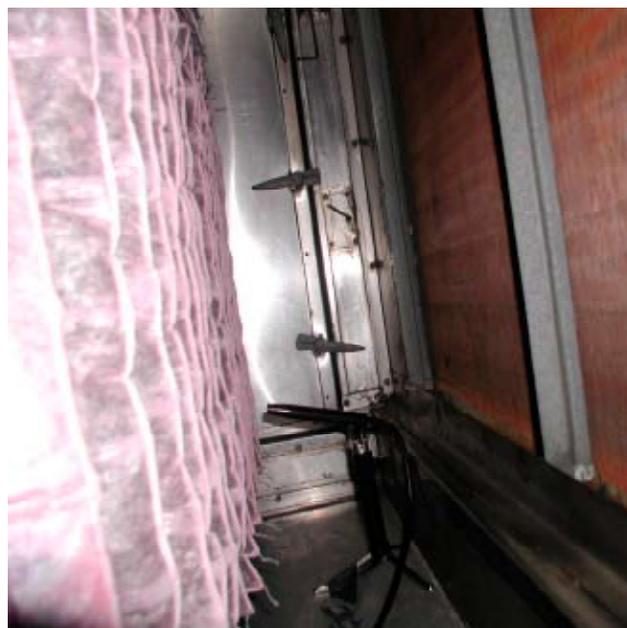
Pressure drop across both filter banks were relatively the same proving the Camfil product was delivering far superior particulate removal and indoor air quality at equal energy usage.

IN-SITU TEST - 6 MONTHS

Coarse Fiber vs. Fine Fiber MERV 13 (80-85% DS)

	MFR	Camfil	Precisionaire
40 Filters (100% Outdoor air)	Type	M13 Hi-Flo	PAP885S4422
	Media	fine	synthetic
	Initial performance		
	ΔP (inWG)	0.37	0.29
	0.4 μm Eff. (%)	71	64
Final performance	ΔP (inWG)	0.35	0.30
	0.4 μm Eff. (%)	74	22

Flow – 443fpm Flow – 370fpm



The government facility then challenged Camfil to test the fine fiber Hi-Flo bag filter against Flanders fine fiber fiberglass bag filter. Camfil welcomed the challenge due to the product’s tapered stitch bag and proprietary media. After only eight weeks, the Flanders product was at over 1" pressure drop, indicating time to change while the Camfil Hi-Flo bag filter after 21 weeks was only at a 0.61" pressure drop, and just as importantly, was at a 10% higher efficiency level than the Flanders product after only eight weeks in service.

