OPAKFIL PROSAFE

- Specially designed for process safety
- Anti-microbial growth certified
- Sufficiant restistance to withstand common decontamination and cleaning agents
- Food contact suitability
- Efficiency from M6 to F9
- Hygienic bag
- Light and efficient (4,5 kg instead of 6,5 kg in the following case study)
- Available from stock

OPTIMIZATION OF THE FILTRATION WITH THE ANALYSIS OF THE TCO (TOTAL COST OF OWNERSHIP)

Site: Sanofi - Merial, LPA (Lyon-Porte-des-Alpes)

Focussed on innovation, Merial is the world leader in animal health offering a comprehensive range of products designed to improve the health, well-being and performance of a large number of animal species.

The entity LPA (Lyon-Porte-des-Alpes) is the main site for the production of veterinary vaccines in Europe and Merial's main organic production site. LPA extends over 21 hectares located in the Saint-Priest technology park, in the East of the Lyon area.

Created in 1996, the site produces vaccines for several animal species (dogs, cats, horses, pigs, cattle, sheeps and birds), for global export, except to the United States. It includes antigen production from three technologies (roller bottles, ovo culture and biogenerators), transformation into pharmaceutical form (formulation, distribution, freeze-drying) and quality control activities.

The site formulates and also distributes active ingredients from Merial's European production sites. LPA is ISO 14001 certified, it produces 80 millions vials of vaccines per year.

Initial situation:

70 air handling units are all equipped with first stage filtration with so-called standard F7 efficiency competitor's filters. The customer's request was to optimise this filtering system by reducing its TCO

Camfil solutions

Camfil offered to compare the energy costs of the previous filters with Opakfil ProSafe F7. This analysis was conducted in 3 stages:

1. A theoretical approach by simulations using Camfil's LCC software
2. A laboratory test
3. A comparison and in situ monitoring of one of the site's air handling units (AHU).

1. Theoretical approach:

It was important to define the TCO of the previous filters and the Camfil's filters, using the LCC software

Study for 6 filters	Opakfil F7	Competitor's F7 filter
Energy cost in kWh/year	4 872	7 858
Energy cost in €/year (€0.07/kW)	341	550

This approach enabled us to identify interesting options. Camfil's Opakfil will allow substantial energy savings (€200 a year for 6 filters).

www.camfil.fr

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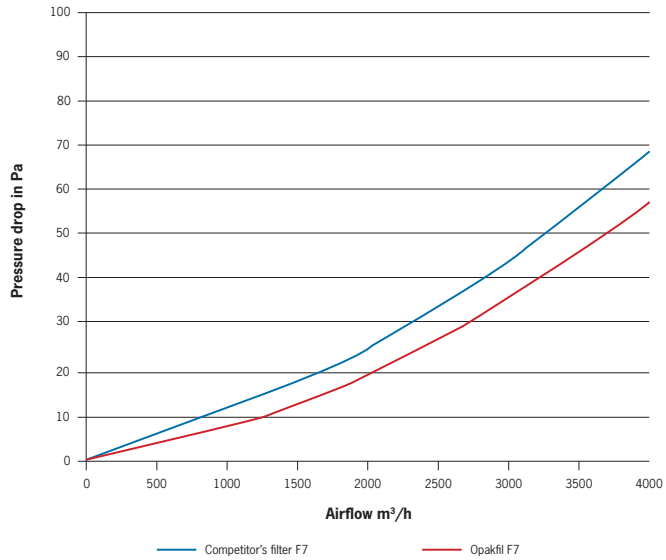
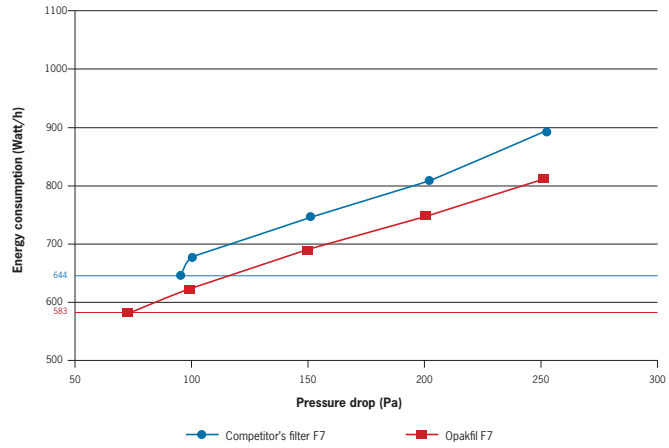
2. Actual measurements in the Camfil laboratory



Curve 1: Pressure drop / air flow



Curve 2: Energy consumption / pressure drop

Opakfil's pressure drop vs air flow is always lower than the competitor's (curve 1). At 3400 m³/h, the pressure drop difference between the 2 filters is greater than 15 Pa.

The result is less energy consumption throughout the filter's life (curve 2).

3. In situ measurements on one of the AHU

The measurement campaign spread over a year and a half confirmed the 2 trends of the preliminary studies conducted by Camfil.

AHU: 18,750 m³/h equipped with 6 standard size F7 filters 592 x 592 x 292 mm

Operation 8,760 h/year - Recycling 75%

Customer's energy cost: €0.07/kW

	Opakfil ProSafe F7	Competitor's F7 filter
Average pressure drop/month/filter	3.2 Pa	9 Pa
Laboratory pressure drop	5 Pa **in a year**	7 Pa **in a month**

The measures highlight a rapid increase of the pressure drop of the competitor's filters due to less dust holding capacity of this type of product.

	Opakfil ProSafe F7	Competitor's F7 filter
Average pressure drop over 5 months in Pa	44	87
Costs of the energy consumed over 5 months in € per filter (€0.07/kW)	20	38
Annual energy cost per filter in €	47	93
Annual energy cost for 6 filters in €	282	558

Proof

Operating cost savings on a single filtration stage and a single AHU:
at least €276

Due to a lower initial pressure drop and a slower clogging speed, Camfil's Opakfil ProSafe will last approximately twice as long.

With the competitor's filters we also note a rapid loss of overpressure in the area and the need to compensate by increasing the frequency of the fans.

Benefits:

The choice of Opakfil ProSafe is reflected by the energy gains from their installation.

In addition to their low pressure drop:

- fewer replacement
- less waste
- improved productivity due to a fall in production area downtime.

Testimony: Mr Franck Gabriel's, facilities et maintenance manager

"Our site fully suscribes to global efforts towards energy savings.

Our AHU already had efficient fans with motor speed control thus, the filtering system was one of the tracks toward more savings but we couldn't know how much.

Our products and production are our top priority so we had to really think about our tracks because we couldn't perform too many tests.

A first study with a software used to calculate costs and tests were realized by Camfil.

It allowed us to have a more accurate picture on what to do and we decided to run a measurement campaign on an AHU equiped with F7/E10/H13 filters.

For a year, we've checked the following elements: pressure drop, dimmers' frequency, overpressure of the premises...

After a year, the conclusion is clear, even clearer with the F7 filter: the Opakfil ProSafe (which replaces the Opakfil Energy) performances dicreased three times slower than the standard F7 filter we used to have.

Then, we decided to continue to run the tests for one year because the pressure drop after the first year was very low.

We now just finished those tests and they confirm what the first study pointed at: in addition to the energy savings, the Opakfil ProSafe lasts longer than its competitors' filters and thus requires less replacement. That means:

- *less energy consumption*
- *less filters replacement and less downtime for our staff and production."*