



FRY PROCESSING AND FROZEN FOOD PLANT

AIR FILTERS. HIGHER PERFORMANCE, LONGER LIFE, IMPROVED AIR FLOW, & DRAMATICALLY LOWER COST.

COMPANY PROFILE

One of North America's largest food companies and one of the nation's leading specialty potato providers to restaurants and other food service establishments.

THE SITUATION

The sweet potato fry production generated high contaminant levels over the batter and fry lines. Filters in three large air handling units (AHUs) for the lines were routinely overwhelmed and required frequent change-outs with another six AHUs serviced less often. Despite vastly different contaminant scenarios due to the production process, the current filters selected for all AHUs were exactly the same. Each AHU was configured for two stages of prefilters. The filters in both stages were 2" MERV 8 pleats from AirFlow Inc. The third and final stages had Flanders Rigid-Air MERV 13 box-style filters.

In the high contaminant plant areas, the first two stages of pleated prefilters were not lasting more than a month and frequently burst sooner. The contaminant by-pass in the units caused premature failure to the second stage and final filters due to lack of surface area to handle the dirt load and maintain the required airflow. The two stages of prefilters in the AHU's over less challenging plant areas were lasting no more than three months despite lower dirt loads. The units' final filters were changed every six months by an outside contractor regardless of the condition.

THE ACTION

Camfil representatives categorized the AHUs by the production process contaminant level. In the high contaminant area, the overwhelmed pleated prefilters in stage one were replaced with Camfil's 22" deep Hi-Flo® MERV 9 bags, and Camfil 30/30® 2" deep MERV 8 pleated filters were installed in stage two. The Hi-Flo filters provided the required strength in stage one allowing the 30/30 panel filters to handle stage two. In the medium load process, Camfil 30/30 2" deep MERV 8 prefilters were installed in the return air and make-up air stage, and Hi-Flo ES 22" bag filters were selected for the final stage. In the low load process 30/30 2" deep MERV 8 prefilters were installed in the first stage return air and MERV 13 Hi-Flo ES bags were used as the final filter – completely eliminating one filter stage.

THE RESULT

After Camfil's filter selections had been in use for nine months, samples from each area were removed and tested on-site using Camfil's mobile testing unit. Results from all three contamination areas showed positive results with a calculated annual savings of \$56,571.



"30/30 prefilter and Hi-Flo ES filter combination reduce annual filtration expense by more than 50%."

THE PROOF

High Contaminant Area

The first stage Hi-Flo® MERV 9 bag filters lasted six times longer than the Air Flow 2" pleated filters in the three units with the highest contaminant load. After three months in service, the bags tested only .23" w.g. without any damage. Pressure drop also remained low significantly increasing airflow into the plant. The test proved the Camfil 30/30® 2" deep MERV 8 pleat in the second stage would last a six months or more – twice the previous life.

The MERV 13 Camfil Hi-Flo ES filters in the final stage were reading .4" w.g. after nine months in-service, indicating the bag filters would remain in-service 12 months – doubling that of the Rigid-Air.

The reduction in filters, labor hours, and Kw usage translated into a savings in excess of \$25,000.

Medium Contaminant Area

The pressure drop readings on the two Camfil 30/30 pleated prefilter stages in the four units with a medium contaminant level proved the change-out cycle would be extended from three months to six to nine months. After nine months in service,

these filters were only reading .43" w.g.

The installed MERV 13 Camfil Hi-Flo ES final filters were reading .39" w.g. after three months in service which indicated a minimum service life of 12 months – at least twice as long as the previous filters.

With fewer products required, less labor hours needed and fewer Kw hours consumed, the savings calculated to be close to \$20,000.

Low Contaminant Area

In the two units with the lowest contaminant level, the pressure drop increase of the single-stage prefilters was not measurable. These filters are expected to remain in-service 12 months – four times longer than previously. The single-stage prefilters allowed an increase in airflow into the plant without sacrificing performance.

The MERV 13 Camfil Hi-Flo ES bag filters in the units could easily remain in-service up to 18 months, lasting three times longer.

The savings from less filters, labor hours, and Kw hours consumed added up to more than \$11,000.

HIGH CONTAMINANT - 3 UNITS			
Previous Filter Cost	Previous Labor Cost	Previous Energy Cost	Annual Cost
24,804	8,100	15,819	48,723
Camfil Filter Cost	Camfil Labor Cost	Camfil Energy Cost	Annual Cost
14,115	1,500	7,659	23,274

SAVINGS \$25,449

MEDIUM CONTAMINANT - 4 UNITS			
Previous Filter Cost	Previous Labor Cost	Previous Energy Cost	Annual Cost
11,136	4,000	27,940	43,076
Camfil Filter Cost	Camfil Labor Cost	Camfil Energy Cost	Annual Cost
6,620	1,600	15,096	23,316

SAVINGS \$19,760

LOW CONTAMINANT - 2 UNITS			
Previous Filter Cost	Previous Labor Cost	Previous Energy Cost	Annual Cost
4,800	2,000	13,970	20,770
Camfil Filter Cost	Camfil Labor Cost	Camfil Energy Cost	Annual Cost
1,288	300	7,820	9,408

SAVINGS \$11,362

TOTAL ANNUAL SAVINGS:
\$56,571

Filter usage went from 2,264 annually to 563 – a total of 1,701 fewer filters per year hauled to landfill sites.

The unique packaging of the Hi-Flo ES reduced the number and weight of filters carried allowing one worker to carry four boxes (eight filters) at a time.

Which filter solution is less labor intensive to haul up three flights of stairs?

