



**SECTOR:** Beverages

**CLIENT:** Refresco

**LOCATION:** Italy

**DATE:** January 2023

# INDOOR AIR QUALITY IMPROVEMENT AND COST REDUCTION

## SAVINGS ON MANAGEMENT COSTS OF ASEPTIC LINES IN REFRESCO ITALIAN DRINK COMPANY THANKS TO THE CC2000 AIR PURIFIERS

Spumador is an Italian company belonging to Refresco Italy, one of the largest beverage producers with a product portfolio that includes mineral waters, carbonated drinks, teas, sports and isotonic drinks, and fruit juices. It currently has over 600 employees and 5 bottling plants for 22 production lines.

### THE SITUATION

The Spumador site in Caslino al Piano (CO) detects an early clogging of the air filters of the aseptic fillers, which requires their quarterly replacement, significantly affecting the management costs of the lines.

### THE OBJECTIVE

Obtain a result of filter change efficiency.

### ANALYSIS

In October 2017, a Camfil filter with U15 efficiency installed on the fillers was sent to the Camfil Tech Center in Trosa, Sweden. The goal is to understand the cause of the rapid clogging that leads to a quarterly replacement of this type of filter.

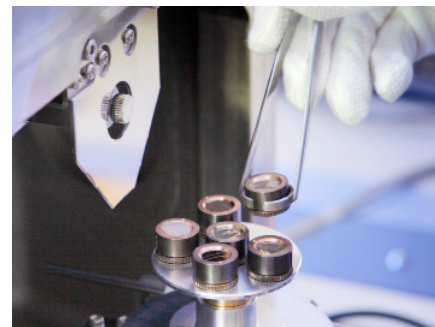
The Analyses are Carried out with:

- SEM (Scanning Electron Microscope) microscope that uses a beam of focused electrons that strike the sample to generate images magnified up to 300,000 times.
- ESD (Energy-dispersive spectroscopy) to identify the type of chemical elements present within a sample.

### ANALYSIS RESULTS

The air outlet side of the filter membrane is free from particles and there are no signs of clogging.

The air inlet side of the filter membrane is instead covered by a thin layer of carbon and salt crystals presumably deriving from the washing and sanitizing activities of the process machines which block the passage of air causing an increase in the pressure drop.

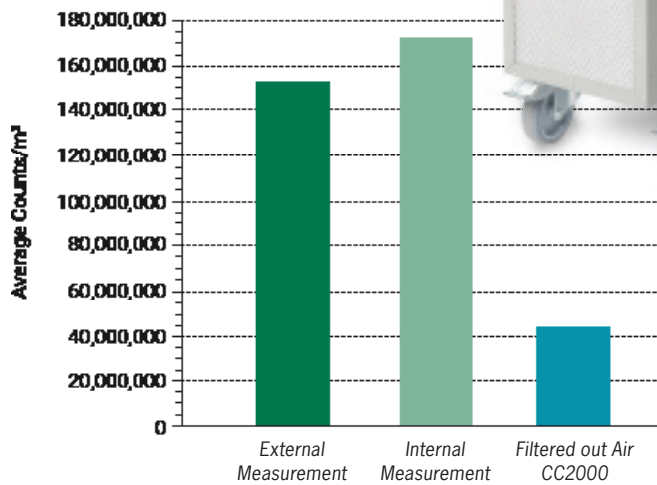


## SOLUTION

The proposed solution is the installation of 4 CC2000 air purifiers equipped with 55% ePM1 prefilters according to ISO16890 and H13 filters including ducting and diffusion hoods.

The filtered air coming out of the purifiers and ducted directly onto the suction of the fillers creates a barrier and prevents chemical residues from cleaning and sanitizing activities from depositing on the filter, clogging it prematurely.

### Particles 0,3 µm



CC2000

## PROOF OF CONCEPT

In order to understand which the correct arrangement of the air purifiers and the most technically effective solution for the specific needs of Spumador, several particle counts were carried out on site using the TSI Aerotrak mod.9306 laser counter.

The measurements carried out confirmed the need for greater protection with additional filtration for the filler filters. This was made possible without generating further pressure drops which would have affected the capacity of the fans.

The air leaving the purifier will be transferred through custom-made diffusion hoods.



TSI Aerotrak  
mod.9306

## CONCLUSION

Thanks to the use of Camfil CC2000 air purifiers, the following results were obtained at the Spumador Spa factory in Caslino al Piano (CO):

- IMPROVEMENT OF THE QUALITY OF THE AIR ENTERING THE FILLERS BY REDUCING THEIR MICROBIOLOGICAL LOAD AND BREAKING DOWN THE AIRBORNE CONTAMINANTS DERIVING FROM CLEANING AND SANITIZATION PROCEDURES
- REDUCTION OF THE NUMBER OF FILTER REPLACEMENT INTERVENTIONS ON ASEPTIC LINES, GOING FROM 3 FILTER REPLACEMENTS/YEAR TO ONLY ONE FILTER REPLACEMENT PER YEAR
- SAVING OF ABOUT 60% ON THE COST OF PURCHASING FILTERS FOR ASEPTIC LINES
- REDUCED LABOR COSTS BY 1/3

