



Eaton brings customized filtration solution to major flavors and fragrances supplier

Location:

The Netherlands

Segment:

Life Sciences

Challenge:

To increase productivity while maintaining quality standards

Solution:

Eaton's BECO INTEGRA PLATE 400 DC along with BECOPAD filter sheets.

Results:

Throughput speed tripled, quality standards achieved and commitment to sustainability uncompromised

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Background

With subsidiaries in 32 countries, one of the world's largest flavors and fragrances manufacturers supports a variety of customers in the beverage, dairy, sweets, and other food processing industries as well as customers in the beauty, home care, perfumes and laundry products industries.

Recently wanting to increase productivity, the company teamed up with an engineering consulting firm to explore its options. The pair soon determined that replacing an old filtration system with a newer one could yield a wealth of positive results, including increased outputs, increased capacity, and improved efficiencies. A new filtration system would also bolster the company's desire to always employ sustainable business practices that includes water and energy usage reductions as well as significant cutbacks on the use of chemicals for cleaning.

Challenge

Before any changeover was made, however, the flavor and fragrance company wanted to make certain that its quality standards would not be compromised. To help ensure this, the company conducted a trial filtration test with a flavoring known as Vanilla Bourbon Tincture.

One of the more difficult flavors to filter, the Vanilla Bourbon Tincture had an initial turbidity of 141 NTU (Nephelometric Turbidity Units). The goal was to get the product clear with a turbidity of less than 3 NTU, and quickly process the targeted batch size, which was 2,600 kilograms (roughly 57,000 lbs.)

Eaton was more than ready for the challenge.

Solution

Eaton presented its BECO INTEGRA 400 DC filtration system from the Begerow® Product Line, which is completely enclosed, highly productive and safe to operate. Additional features include ideal flow distribution and product supply flow due to the configuration of the supply channels, and easy cleaning of the sanitary design of the filter elements.

In addition, four different types of filter media, including Eaton's popular mineral-free and environmentally friendly BECOPAD® filter sheets, were tested to ensure that purification objectives were met as well as improved speed and output.

During tests, all four media achieved acceptable and comparable filtrate quality standards with turbidity levels well below where they needed to be. Throughputs varied with the various media being tested.



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Before a final decision could be made, though, Eaton discovered that a thin layer of impurities with a highly oily consistency were accumulating on the surface of the filter media. This indicated that most of the impurities were being removed by surface filtration, which was unacceptable. The impurities should be removed using the filter matrix and properly captured inside of the filter structure.

To remedy that, Eaton's BECOCEL™ 100 pure cellulose filter aid was added as a body feed to see if that could help build a desirable permeable filter cake on top of the filter sheet. After various trials, Eaton soon discovered that a concentration of 0.18 percent BECOCEL 100 filter aid in combination with BECOPAD 450 filter sheets performed the best.

Results

With the new filtration system in place in combination with the BECOPAD depth filter sheet and BECOCEL 100 filter additive, throughput speeds improved to roughly three times faster than before. In addition, their quality standards and sustainability objectives are being achieved with the Eaton BECO INTEGRA PLATE 400 DC filtration system.

Plant officials at the flavors and fragrances maker were so impressed with the results, they soon committed to purchasing two new Eaton filtration systems.

Due to the technical support and application knowledge that Eaton provided, the company has agreed to abandon the competitive filter media it had been using in favor of the Eaton BECOPAD 450 filter sheets used in the testing.



BECOPAD Depth Filter Sheet



BECO INTEGRA PLATE
Enclosed Plate and Frame Filter