

Leading oleoresin manufacturer achieves zero downtime for cleaning sediment build up

Self-Cleaning Russell Eco Filter® allows continuous operation nonstop, year round for spice extract producer

Spice extracts, essential oils, and value-added spices are key products created by the world's largest producer of value-added spices & oleoresins. Based in India with factories worldwide, the manufacturer supplies a range of global brands, including Nestlé, Unilever, ITC, Bacardi, and PepsiCo.

Oleoresins are up to 20 times more concentrated than their corresponding spices. As a result, they are applied to almost every food and beverage to add flavor, color, or other attributes of natural spice. Oleoresins are also widely used in the pharmaceutical, flavors, and fragrances industry.

To create the spice and nutraceutical extracts, the manufacturer cuts the raw spices (for example, black pepper, red chili, turmeric, or rosemary) into pieces before powdering and turning them into pellets. The pellets are sprayed with hexane, acetone, or ethyl acetate in a bucket elevator or dipped into a solvent tank to extract the essence of the spice.



Installation of the Self-Cleaning Russell Eco Filter®

This extract, called miscella, is a 5-30% product concentration, with the remaining liquid being solvents. During the vacuum distillation process, the solvents are evaporated from the miscella, and the remaining viscous liquid is oleoresin.

The challenge

After extraction and before evaporation, the miscella must be filtered to remove physical sediments such as fibers, wax, and powders to avoid contamination of the oleoresin. However, the manufacturer's filtering method created a bottleneck in its production.

It used a series of filter candles with a sparkling cloth-type media. The eight-layer media had to be replaced for every 5,000 kilograms of filtration due to sediment buildup. The daily cleaning, which took four hours with two operators, led to significant production downtime.

This filtration method also created a further challenge due to the health and safety risk of operators breathing solvent vapors as they disassembled and cleaned the filters.

The solution

The manufacturer looked for an alternative filtration solution to improve the efficiency of its production process and discovered the **Self-Cleaning Russell Eco Filter®**.



After a successful on-site trial of the machine, the company implemented the Self-Cleaning Russell Eco Filter® into its production operation.

The company handles a capacity of 3,000 liters of miscella extract per hour through the Self-Cleaning Russell Eco Filter® with a single 15-micron screen without any operator involvement. With this new filtration solution, the manufacturer achieves a consistent flow and avoids the production bottleneck that it experienced previously. The consistent flow also allows the filtration times to be completely predictable, something not possible with the previous arrangement.

The filtration process now runs continuously, all year round due to the self-cleaning design of the Self-Cleaning Russell Eco Filter®. Instead of filter cloths that need replacement, the machine uses a permanent stainless-steel screen continuously cleaned by a wiper. There is no downtime required, and cleaning only occurs once a year during plant maintenance shutdown.

A further benefit to the oleoresin manufacturer is the fully enclosed system, which protects operators from hazardous fumes and eliminates solvent wastage. In addition, the Self-Cleaning Russell Eco Filter® automatically removes oversize and contamination to protect the quality of the oleoresin.

The Self-Cleaning Russell Eco Filter®

Key benefits:

- **Increases capacity**
Eliminates production downtime to replace bags or cartridges
- **Improves product quality**
Defined hole stainless steel media removes all oversized contamination
- **Protects operators' health and safety**
Enclosed system prevents the leakage of hazardous products

About us

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