



Hemp Extract and CBD Oil Filtration



CBD is derived from the hemp plant, pictured here.

How Eaton's solutions for improving the CBD oil production process leads to premium outputs.

Cannabidiol, commonly referred to as CBD and also known as hemp oil, is one of many chemical compounds derived from the cannabis plant.

Since the CBD oil industry is growing rapidly due to its growing usage in food, pharmaceuticals, supplements, nutraceuticals, and cosmetics, the need to process larger quantities of CBD oil is also increasing.

This requires effective extraction and filtration methods for varying quantities of the oil – a challenge manufacturers of CBD oil are currently facing as they work to keep both safe, efficient, and low-cost in design. What's more, these processes must also be effective for small and large batches while simultaneously reducing product loss and increasing yield.

Strict quality control standards are becoming more important to consumers as well, and there is a need to put a Good Manufacturing Practice (cGMP) in place for ensuring products are consistently produced and controlled according to top quality standards. Within cGMP, extraction and filtration processes must be carefully selected and managed.

After all, when the quality affects the customers' end CBD oil products, consistency is critical. And, because that consistency hinges on the production process, it's important to select the right filtration equipment and technologies.

Various configurations of filters for easy scale-up are required and filter media need to meet quality guidelines of the Food and Drug Association (FDA). Cleaning in Place (CIP) is another key feature for filtration systems.



Powering Business Worldwide

How to produce premium hemp extract and golden CBD oil

There are many methods to extract cannabidiol or hemp oil, the most common being ethanol and CO₂ extractions. For both methods, filtration plays an important role.

Eaton recommends a two-step process for purification. The first step is the clarification filtration which can be done in two stages:

Stage 1: Coarse particles, plant residues and value-reduced fats and waxes are removed. For this, pure cellulose BECOPAD 580 and BECO CPS range depth filter sheets are ideal due to their high dirt-holding capacity and a wide retention rating spectrum from 8 to 40 µm.

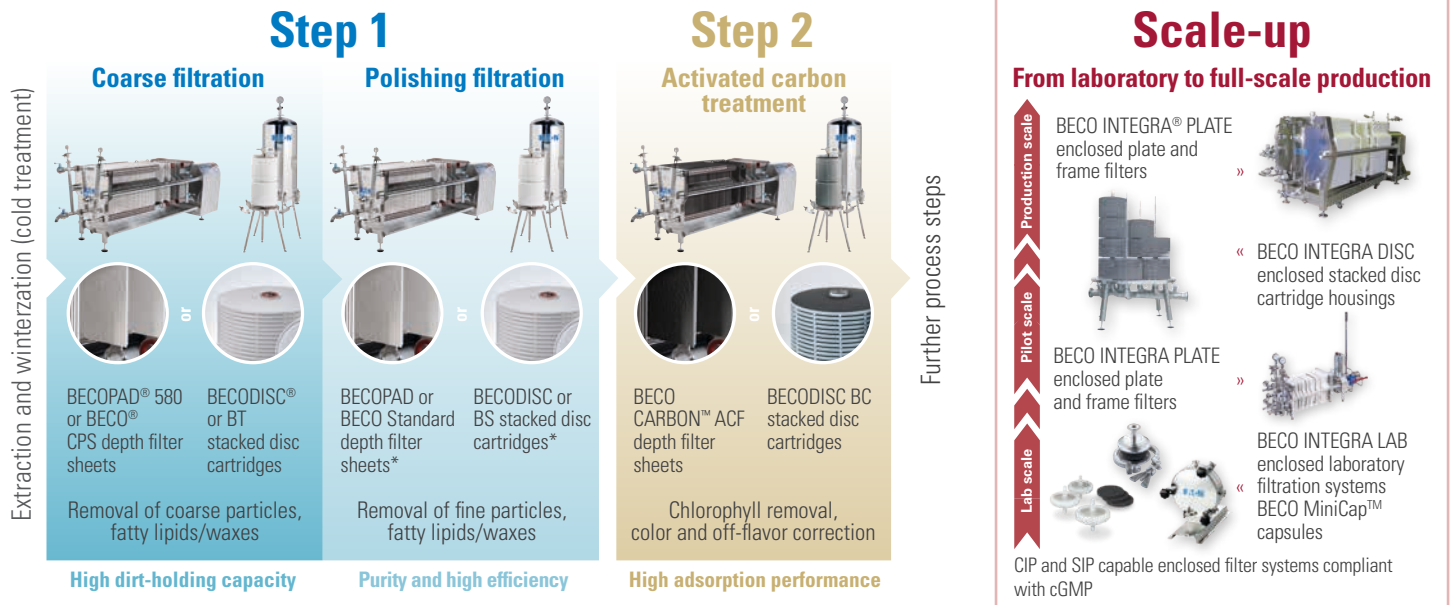
Stage 2: The second stage in clarification is the polishing filtration. The pure cellulose filter sheet BECOPAD and BECO Standard range are ideal due to their high separation efficiency. For pharmaceutical applications, corresponding high-purity filter media are available with low extractable ions.

The second step after clarification filtration begins with using an activated carbon filter like BECO CARBON ACF 02 with a carbon content of 1,000 g/m² which provides a particularly high adsorption capacity, removes color due to chlorophyll and corrects color and taste.

Learn more about Eaton filtration solutions for manufacturing stable, high-quality, intense cannabinoid products with a clear, golden character.

Eaton's solutions for CBD oil production:

- Clarifying filter media with high dirt-holding capacity for removal of plant residues and fatty lipids/waxes
- Low ion content and high-purity cellulose BECOPAD P or BECO PR filter media for pharmaceutical applications
- Reliable chlorophyll removal with BECO CARBON ACF 02 filter medium with immobilized activated carbon
- FDA-compliant filter media
- Easy scale-up options with filter system designs for start-ups and full-scale manufacturers
- cGMP compliant enclosed filter systems with CIP and SIP capability



Eaton products meet national and international quality standards, such as the LFGB (Food, Commodity and Feed Act) in Germany, FDA (Food and Drug Administration) guidelines in the USA and European Directive (EU) 10/2011 for plastic materials and articles, as well as subsequent amendments (EU 2020/1245).

*High pure pharma grades with low extractable ions available.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Greater China
No. 7, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 2899-3687

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

Asia-Pacific
100G Pasir Panjang Road
#07-08 Interlocal Centre
Singapore 118523
Tel: +65 6825-1620

For more information, please
email us at filtration@eaton.com
or visit www.eaton.com/filtration

© 2023 Eaton. All rights reserved. All trademarks and registered trademarks are the property of their respective owners. All information and recommendations appearing in this brochure concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Eaton as to the effects of such use or the results to be obtained. Eaton assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.