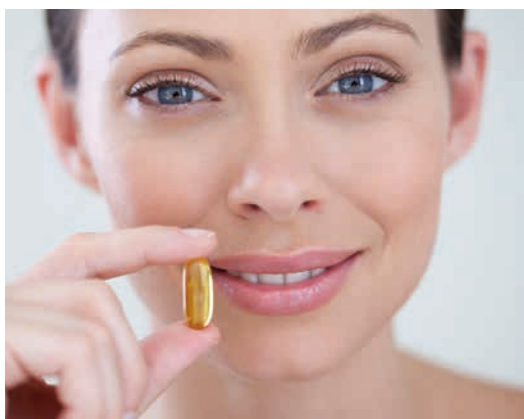


Gelatin Filtration



Gelatin or hydrolyzed collagen is an important ingredient in creams, lotions, shampoos and dietary supplements, but is also used as a coating agent for hard or soft capsules.

How Eaton's filtration solutions improve the gelatin production process to deliver superior results.

Gelatin is a purely natural product that consists almost exclusively of animal protein, which is obtained through the hydrolysis of collagen-containing material of animal origin. The goal of gelatin production is to convert water-insoluble, collagen-rich, raw material into water-soluble gelatin with essential properties such as gel strength, viscosity, color and clarity.

Gelatin is used as a food, industrial or pharmaceutical product. Some of the possible use cases include:

- Gelling agent in foods such as gummy bears, desserts, cakes and sausage products
- Auxiliary material for clarifying food and beverages
- Component of cosmetic products such as collagen gels
- Coating agent in the photographic industry
- Coating agent for medications or dietary supplements such as tablets and capsules, or as a binder

Due to the wide variety of possible use cases, the requirements of producers are tied to the intended use. For pharmaceutical-grade gelatin, additional purification process steps or higher quality standards must be met compared to gelatin that is produced for industrial purposes.

In addition, producers must ensure that current cGMP requirements (Good Manufacturing Practice) are met to maintain quality standards. Of course, this also applies to the selection of process steps and the auxiliary materials being used to purify the liquid gelatin.

Regardless of the gelatin's intended use, producers rely on effective and affordable solutions in order to achieve the goal of a clear, particle-free, and economical product. The key to this is safe filtration solutions with long filter service life.

EATON

Powering Business Worldwide

Which Filtration Processes Help Produce First-Class Gelatin?

Collagen protein is acquired through either alkaline or acidic processes, subsequently processed into gelatin. Both methods involve dissolving collagen from the raw material and extracting it during hot water extraction. The quality of resulting gelatin is determined by the temperature and duration of this process. Regardless of the pre-treatment method, filtration plays a pivotal role in achieving the desired quality on the path to the final gelatin product.

Eaton recommends a two-stage purification process. Stage one is clarifying filtration, which can be carried out in two steps.

In the first step, coarse particles, fat breakdown products and fine fibers are removed. BECO ENDURA support sheets designed for pre-coat filtration with filter aids are suitable for this. Due to their wet-strength and optimal filter surface texture, an extended filter service life of up to 30 pre-coat cycles is possible. Alternatively, needle felt or monofilament filter bags from the CLEARGAF series can be used.

The second step is fine and polishing filtration for removal of the finest particles and microorganisms. The BECOPAD range, made of high-purity cellulose, and the BECO Standard range are ideal for this step due to their retention performance. In particular, the wet-strength of the BECOPAD depth filter sheets ensures process reliability and long service life even in challenging application conditions.

Following clarifying filtration, stage two employs high-performance activated carbon filters such as BECO CARBON ACF 07.10. This step is particularly recommended if there are higher quality requirements in terms of color, odor and taste.

Eaton solutions for gelatin filtration:

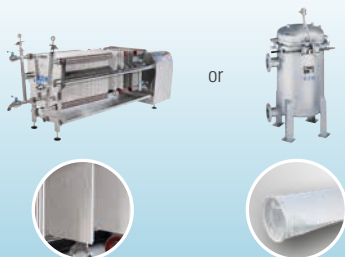
- BECO filter media with high dirt-holding capacity safely removes particles and haze
- CLEARGAF filter bags made of needle felt and monofilament effectively reduce turbidity
- BECOPAD filter media made of high-purity cellulose with high strength ensure safety at high process temperatures
- BECO CARBON ACF 07.10 filter media with immobilized activated carbon meet special requirements for color and odor correction
- FDA and EU food compliant filter media increase process and end product safety
- cGMP compliant classic and enclosed filter systems with CIP and SIP capability maximize process hygiene

Stage 1

Stage 2

Alkaline or acidic pre-treatment, hot water extraction and separation

Coarse filtration



BECO® ENDURA® support sheets and BECOGUR® diatomaceous earth in BECO COMPACT PLATE™ multi sheet filters

CLEARGAF™ filter bags in MAXILINE™ VMBF bag filter housings

Removing traces of fat and insoluble particles

High particle separation

Fine and polishing filtration



BECOPAD® or BECO Standard depth filter sheets in BECO COMPACT PLATE multi sheet filters

Removal of colloids and microorganisms

High safety and effectiveness

Ion exchanger and evaporator

Activated carbon treatment



BECO CARBON™ ACF activated carbon filter sheets in BECO COMPACT PLATE multi sheet filters

Correction of color and off-flavors

High adsorption performance

Sterilization, cooling, drying and grinding

Eaton products meet national and international quality standards, such as the LFGB standard (German Food, Commodity and Feed Act) in Germany and FDA guidelines (Food and Drug Administration) from the USA.

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