

GOGANI COMPANY

Manufacturer of Pharmaceutical

& Biological Machinery

Bioprocess Solution

Bioprocess Consultation

Pectin & Gelatin

(Processing Systems & Machinery)

Pectin & Gelatin

Pectin

Pectin (from the Greek “pektos” = gel) occurs in all higher terrestrial plants. Citrus fruits occupy a special position, as they have an unusually high concentration of pectin substances in the flavedo and albedo (about 25 percent moist mass of the whole citrus fruit). The pectin obtained from the citrus peel is used mainly as a setting agent in the food industry, but also for pharmaceutical and cosmetic products. Global production of pure pectin is estimated at approx. 35,000 tons of which 70 percent comes from citrus peel.

The pectin process from Gogani Co. provides today’s producers with an extraction process which is as gentle on the product as it is efficient.



Following a special initial treatment of the fresh peel and storage in mechanized silos, the dried peel is milled and fed into the extraction process. The pectins are extracted by a variety of acids with a pH-value of 1 to 3, at a temperature between 65 °C and 85 °C and for an extraction period of 0.5 to 6 hours. Extraction delivers a raw extract with 0.3 to 1 percent pectin. Separating this viscous solution from the heavily swollen and in some cases disintegrated pomace cake is the key technical problem in the pectin industry.

In the pectin process from Gogani Co. shown in the flow chart, this task is managed by combining a number of decanters and a filter press. The extract then runs through the separator and precoat filtration before the pectin is precipitated using isopropanol. The excess precipitant is then separated by a gas-tight decanter until only dry pure citrus pectin with good storage properties remains.



Gelatin

Gelatine is obtained from pig skin, bone and hide. Animal protein is in high demand from an enormous range of industries and is used, for example, in the production of foodstuffs, pharmaceutical products and even in the production of photographs and films. Gogani Co. supports the recovery of gelatine by separating extraction residues, together with defatting and fine clarification of thin gelatine.

Gelatine is a highly pure form of animal protein. It is based on collagen. Collagen is found in especially high concentrations in gelatine raw materials such as bones, skin and connective tissue. Between five and eight kilograms of raw material are needed for a kilogram of gelatine.



There are two basic types of pre-treatment in the production of gelatine: an alkaline process for Type B (basic) gelatine, and an acid process from which Type A (acid) gelatin is obtained.

The process for acid gelatine extraction is primarily suitable for pig skin. The process is based on swelling and extracting raw collagen by the action of a strong acid and subsequent washing out. Once pre-treated in this way, hot water is added to the materials and they are subjected to discontinuous staged extraction.

The resulting gelatin solution subsequently has to be freed from fat residues from the raw material and from small fibers, because no fat particles may be present in gelatine. In a single step, separators from Gogani Co. simultaneously extract the fat and also clean solid particles which can be spun off.



For subsequent fine clarification, diatomaceous earth filters are frequently used in which the pollutant kieselguhr is used as a filter aid to retain fine contaminants. High-performance clarifiers from Gogani Co. can replace kieselguhr filtration and extend the lifetime of downstream sheet filters.

Specific residue treatment

In particular when extracting from pig skin, fat and insoluble solids are left. To treat these residues further, both on economic grounds and also with a view to process optimization, Gogani Co. decanters can be used in a subsequent extraction stage. The 3-phase decanters separate the suspended residues into pure fat, thin gelatine and solids. Whilst gelatine can be returned to the process, the other discharged products can be sold as technical fats or protein meal.



شرکت گوگانی

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طراحی فرآیندهای بیولوژیکی

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