



FILTERING THROUGH THE NEWS No. 20

Date : 11-08-2015-rev 2

Attn :

To whom it may concern;

GELATINE PROCESS & FILTRATION:

Based on the many questions received we have pleasure to send you some basic info on the filtration of gelatin.

For the filtration it will be important to select the correct filter for the application and depending on the process location you can choose off;

- Process filter type pre-coat pressure leaf (pulse type)
- Disposable element type filter like bag , multi bag or disposable cartridge filter.
- Disposable cartridge type filter with cartridges down to 0,5 micron nominal retention.

In order to explain and justify our choice we can state the following;

Gelatin is usually made from cattle bones and bovine hides by alkali treatment(acid for pigskin). Although a small portion of both materials is used for the production of acid processed gelatins.

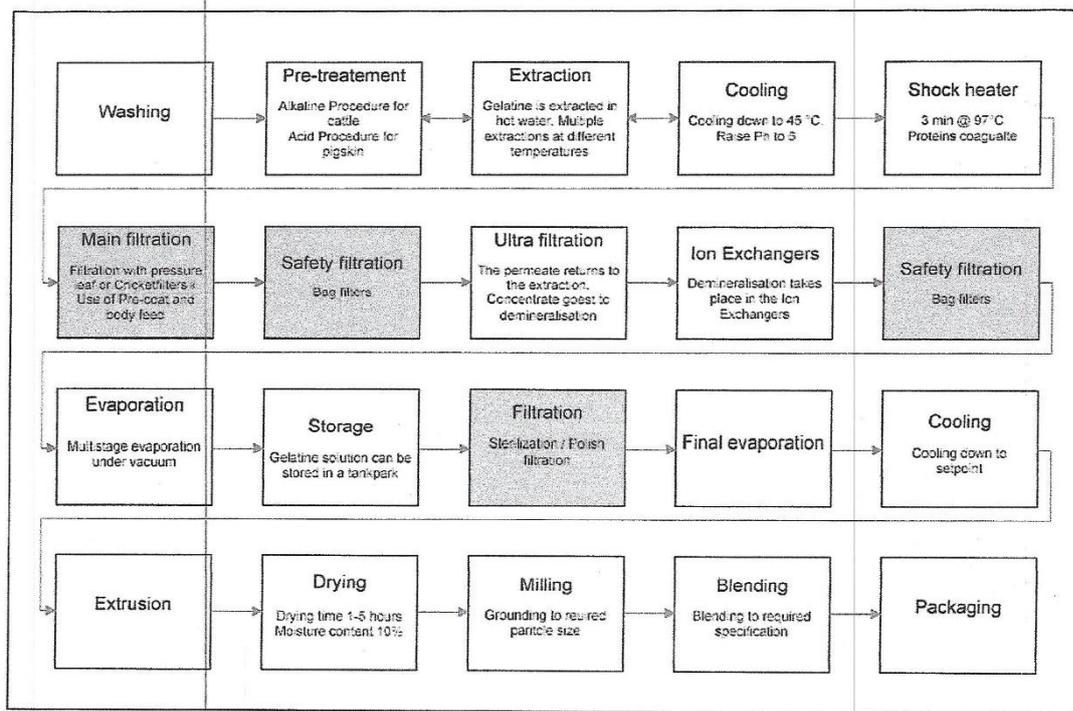
The world annual production of gelatin can be divided into the following four categories;

- Edible grade approx. 50-55 %
- Pharmaceutical grade 20-25
- Photographic (slowly faced out) <10 %
- Technical 10-20%

The three main sources are cattle bones, bovine hides and pigskin. Cattle bones are primarily used for pharma grades whilst hides are usually processed for edible gelatins but also for some pharma grades.

The enclosed info describes the process in great detail and we have experience in all three process steps. In the past many horizontal leaf type filters were used with thick paper sheets and additional pre-coat to give depth filtration to ensure the coarse suspended particles are stopped. In the process we also saw centrifuges by AlfaLaval and Gea/Westfalia replacing filters.

In a next step (secondary filtration) fine suspended particles had to be removed and here a leaf filter or Pulse type filter is used using both pre-coat and body feed to remove also residual grease and bring down the bacterial population. Extra thick pre-coat is no exception (normal= 1 kg/sqm but in some cases up to 3 kg/sqm)



With the selection of the correct filter aid filtration result with < 0,5 ppm residual solids can be achieved.

After the ion exchange units there is another filter application to remove the residual suspended particles from the partially concentrated (14-18%) gelatin. Here we also use a pre-coat leaf or tube filter with body feed during the entire run.

Behind the main filters located at primary filtration we recommend the use of police type bag filters with 1-5 micron bags.

After the ion exchange units we would use bag filters as police filters (following the main filters) too.

After the multi stage evap and before the final evap we want to make sure the gelatin is filtered to have no more solids that need to be removed before packaging. Special pleated expensive cartridge can be used as well as the std spiral wound cartridges.

Cartridges with nominal retention of 1 and even < 1 micron are used .



With times changing and the engineering aspects covered in the manufacture of gelatin being numerous and wide ranging we have to ensure good engineering design with the result of high efficiency, reliable performance and creation of the correct environment for the production of high grade gelatin. This commitment and attitude is of paramount importance.

Past experience with filters supplied to Rousselot France & Belgium, Danisch Gelatine in Danmrk, Deutsche gelatine Werke, Gelatines France ,Nitta Gelatine Canada and Nordisk Gelatine give us the required application knowledge and recent filtration test with both Pectine and Gelatine have updated our knowledge on the products.

In order to be of assistance inform us with info like flow , were in the process this filter is used (first, second or final) and current set up with name , brand and type of filter (if used).

Only with this info we can give you our recommended filter type , size and mode of operation.

DISPOABLE BAG OR CARTRIDGE:

We as process engineers are not a big fan from disposables and there are at least 4 good reasons not to use or at least show some restraint to use these nI;

- The disposables cost money and will keep on costing money. Every day of the year
- The disposables are soaked with product which will represent a residual product loss.
- Disposable have to be manually changed and will require operator time + money and form a housekeeping night mare.
- The disposal cost of consumables will be one more cost and if it is not now it will be In the future. To buy them just as a cost but when dispose they have become chemical waste.

We hope that our information will have your greatest interest and in case of any questions we kindly ask you to contact Mr VT Wong who will be glad to assist you where possible.

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