



WHEY PROTEIN CONCENTRATION

ADVANCED MEMBRANE FILTRATION TECHNOLOGY

We're making the world safer,
healthier & more productive.

Whey protein concentrates are an important group of whey-based food ingredients. The aim of whey protein concentration (WPC) is to separate whey protein from cheese whey while keeping its organoleptic properties. PCI Membranes' spiral-wound membrane elements are the best choice for this application due to:

- low energy requirements compared with the traditional evaporation method;
- better recovery of the valuable mineral composition and protein fractions;
- increased protein content.

In addition, the quality and traceability of our products allow us to ensure constant and reliable performance.



Whey protein concentration process in details:

The production and concentration of whey protein is divided into 4 major steps: pasteurisation, cooling, ultrafiltration and spray drying, as well as a number of sub-steps.

- FG-SpiraCore™ - Sanitary / Dairy Spiral Membranes are typically used for the production of whey protein concentrate (WPC).
- After pasteurisation and cooling of the resulting whey to approximately 50°C, whey protein is concentrated via membrane filtration.
- The application of membrane filtration also helps to prevent the whey protein structure from damaging/denaturing, maintaining the product flavour whilst also having a cost-effective process.
- The spiral-wound membrane selection will depend on your specific application type and target.
- One of the advantages of our filtration technology is energy saving in further processing.
- Another advantage is that by using our filtration technology, it can enable water recovery.



THE SPIRAL-WOUND MEMBRANE TECHNOLOGY

For Whey Protein Concentration (WPC) and Isolation (WPI), we recommend using PCI Membranes' spiral-wound membrane elements as they are produced in state-of-the-art production lines. They are ideal for applications in the dairy industry and are available as Microfiltration, Ultrafiltration, Nanofiltration and Reverse Osmosis membrane elements.



How does it work ?

For whey protein concentration (WPC), an ultrafiltration system is usually set up stage-by-stage to increase the removal efficiency of non-protein species into the permeate. During the whey protein concentration process, feed will travel through the flow channels across the length of the element. The filtrate, which is smaller than the molecular weight cut-off (MWCO) of the membrane, will pass across the membrane surface into the permeate spacer, from where it is carried down the permeate spacer towards the central permeate collection tube. The remainder of the feed will be concentrated at the end of the membrane element. More elements can be installed in series within suitable pressure vessels.

The advantages of FG-SpiraCore™

FG-SpiraCore™, PCI Membranes' spiral-wound membrane elements, come with different spacers, membrane types, lengths and diameters and - as such - can be utilised in a number of applications in dairy industry. The major advantage of FG-SpiraCore™ is that it can lower operating costs by having a high packing density, higher than plate and frame, tubular and capillary configurations. Besides this, FG-SpiraCore™ has excellent chemical resistance, high flux and high rejection, thus having a long service life. Do not hesitate to check on our FG-SpiraCore Spiral-Wound Membrane Element Data Sheets, or ask your PCI Membranes contact.

ADVANTAGES TO WORKING WITH US

- Made in a state-of-the art facility, with highly-trained production personnel and materials of the highest quality
- Over 50 years of crossflow filtration experience
- Ability to quickly adjust to your changing needs
- Technical support from initial conversations to implementation and beyond
- Our products are designed to maximize your productivity, product quality and bottom line
- Our expertise and product quality ensure constant and reliable performance
- Our service team is trained to handle any problem, anywhere in the world

CROSSFLOW MEMBRANE TECHNOLOGY



Reduces pollutants & contaminants whilst maintaining the organoleptic characteristics of whey.



Provides a cost effective method to treat whey with minimal operator support.



Designed to meet specific site demands including fluctuations in volumes & composition.



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