GET READY FOR A TASTE EXPLOSION

Reduced costs - Outstanding product quality - Simplified freeze concentration process

IceCon®
- Freeze concentration at its best

engineering for a better world
FREEZE CONCENTRATION MADE SIMPLE

With its innovative design, IceCon has revolutionized the freeze concentration method, reducing the costs for businesses while still maintaining an excellent product quality.

For years, the removal of pure water in the form of ice crystals at sub-zero temperatures has helped businesses create high quality food products. This technique, however, has been associated with great costs. Until now.

No matter your objectives, with IceCon’s revolutionary freeze concentration methods, you can achieve products ranging from high quality concentrates (food industries) to pure water (waste water applications). With the new IceCon freeze concentration process and its simplified technique, you are guaranteed both reduced capital- and operational expenses.
BUSINESS BENEFITS

With the innovative IceCon system, we have made impressive progress in helping you streamline your processes. Not only will you reduce your overall costs, you will also find that the quality of your final product will improve immensely compared to other processes. This gives your product a clear competitive advantage as you can now compete on both price and quality.

Cost reduction
You can expect a capex reduction of an impressive 40–50 % of the cost of a traditional freeze concentration system. Opex will also be reduced by 20-30 %, giving you a vast reduction in energy consumption as well as transport costs and storage space.

Business development
High quality products. This cannot be emphasized strongly enough in connection to IceCon. Using our new and revolutionary version of the freeze concentration method, you preserve your product at a very high quality. With conventional heat concentration processes, quality will usually be compromised.

With freeze concentration you can even make concentrates from products that have not yet been eligible for concentration before, such as beer and vinegar. This is a very important step not only for product development but also in the development of your business.
THE PROCESS – SHORT AND SIMPLE

IceCon is a revolutionary change from earlier freeze concentration designs with fewer parts and a smart combination of functions, surprisingly simple.

IceCon is revolutionary in that its design is much simpler than earlier freeze concentration designs. Consisting of only one crystallizer and one wash column the process of concentrating products is reduced to one single stage.

The crystallizer is a vessel with a cooling jacket. While the inner wall of the vessel is scraped, the outer wall is cooled down by a circulating refrigerant. This makes it ideal for producing ice crystals. In the crystallizer, the crystals grow into an optimal size, which can then be separated from the concentrated liquid.

In the wash column, IceCon separates the concentrated liquid from the ice crystals. The compressed ice crystal bed is efficiently washed, ensuring that all valuable components remain in the concentrated liquid.

Gas chromatographic analysis of fresh, IceCon and evaporated milk
Low operation temperatures
- IceCon can be used on temperature sensitive products and components with close boiling points

Low energy consumption
- Heat of evaporation is two to four times higher than heat of fusion
- Continuous operation as there is no need for intermediate cleaning

Simplified design
- Low maintenance cost
- Better cleanability
- Smaller footprint
PROVEN APPLICATIONS

Juice, dairy products or maybe even beer? IceCon can be used with a wide selection of products and for different purposes.

The list is long, and we could go on and on. Instead, we have listed the most common product groups and categories below together with the advantages the IceCon gives.

**Liquids**

Transportation of products may mean high costs for a company, and concentration processes can help you reduce these. This is the good thing. The bad thing is that with an evaporative concentration process, quality is often compromised due to heat damage, and the product loses important flavour components.

Freeze concentration makes a significant difference here. With its low processing temperature pure water removal technique, the revolutionary IceCon process has a proven record of maintaining the original properties as well as an excellent quality of the product.

**Nutritional products**

Some products are too heat sensitive for conventional heat concentration processes. Again, the innovative freeze concentration process can make a fundamental difference for your business. Entire new product groups are now eligible for this revolutionary cost reducing and quality retaining method, such as beer and vinegar.
Liquid coffee and tea
- Quality retention
- Aroma retention
- Product development
- Pre-concentration for instant coffee and tea process
- Quality boost of freeze or spray drying
- Cost reduction

Citrus, fruit and vegetable juices
- Preservation of natural freshness and color
- Quality retention
- Premium branding
- Product development
- High quality ingredients
- Cost reduction

Beer
- Best available technology
- Economic storage and distribution
- Peak shaving
- Reduction of aging
- Product development
- Possibility of ice beer
- Stability improvement
- Suitable for post-mix concept

Wine and cider
- Control of alcohol level
- High quality intermediate
- Cost reduction
- Product development

Dairy products
- New product development
- High quality ingredients
- Improved final products
- Better semi-finished products for processors
- Cost reduction

Vinegar
- High concentration ingredient
- Suitable for all types of vinegar
- Cost reduction

Meat and fish extracts
- High quality ingredients
- New product development

Herb and vegetable extracts
- No thermal damage to active components
- Quality retention
- New product development
- High quality ingredients
GEA Messo PT

GEA Messo PT is a globally recognized technology supplier and plant constructor within the field of crystallization techniques; our core business being solution and melt crystallization together with freeze concentration.

We offer a wide variety of process designs, ranging from process design and conceptual studies to the supply of completely integrated plants. Always starting the process development in your company’s own R&D facilities, we create the most suitable and complete supply of technology equipment for your specific needs.

The successful installation of more than 1000 crystallization plants and 60 years of trend setting innovation confirms the reliability of our services and makes us the preferred supplier in a wide selection of applications.

Since 1997, GEA Messo PT has achieved the ISO 9001-2008 quality certificate and is audited annually by Lloyds.

www.gea-messo-pt.com

Contact and test us

Seeing is believing, and we know that calculations on already proven products may not be enough for you; you might want a demonstration of your particular product. No problem. We will be more than happy to rent you a fully transportable unit for you to conduct your own in-house tests. You can also supply us with your product, and we will produce the concentrate samples for you. Feel free to come and witness the whole process yourself.

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