



Crystallization

World-class industrial crystallization solutions.

Separation technologies belong to the basic operations in many processes in the chemical and related industries – whenever liquids have to be separated, water or any other solvent has to be removed, concentration has to be increased or volume reduced, valuable and pure products have to be produced in defined product properties and qualities, by-products or impurities have to be stripped or precipitated.

To meet customer specifications in density, purity, particle size, operating time, while minimizing investment and operating costs, GEA's highly skilled process engineers develop innovative and thermally optimized separation solutions including melt crystallization, solution crystallization and freeze concentration.

GEA's separation technologies are applied in the production of a wide range of products – from bulk products to the most advanced powders within chemicals as well as food and beverage products. Our product range includes plants in all sizes; from small pilot plants for research and product development to the largest industrial installations.

Working with GEA means having a solid partnership every step of the way, from product and process testing and design throughout project execution to the startup and operation of your plant until after sales service.

Solution crystallization also referred to as mass crystallization, is the formation of solid crystals from a supersaturated solution. It is a common solid-liquid separation technique and the most common solvent is water. With crystallization the dissolved substance is recovered in high purity and the desired granulometry.

Depending on the type of crystallizer, the achievable particle size ranges from microns to millimeters.

Melt crystallization is a suspension based process providing slow crystal growth rates that allow pure crystal formation even in relatively impure melts. An ultra-high purity product can be achieved as crystallization is extremely selective. Our proven wash column technology effectively separates the value products from the impurities.

Freeze Concentration is the removal of water from a solution in the form of ice. When supreme quality concentrates are required, freeze concentration is the process of choice. The very gentle concentration at sub-zero temperatures allows product freshness, aroma and flavors to be maintained and practically eliminates all biological degradation.

Crystallization

The right technology for your product.

Decades of experience, first-class application know-how and a passion for innovation have made us one of the leading specialists in crystallization technology.

Whatever your application, we will help you find and implement the optimal process solution for your product.

Options are:

- Cooling crystallization
- Evaporative-cooling crystallization
- Evaporative crystallization
- Reaction-crystallization

GEA portfolio

Forced Circulation Crystallizer (FC):

Simple in design and robust in operation. The working horse for industrial solution crystallization.



Melt Crystallization:

Suspension-based process for pure crystal formation even in relatively impure melts. With proven wash column technology.



Draft Tube Baffle Crystallizer (DTB):

Limited attrition and efficient fines destruction – a design to produce coarse crystals with a narrow size distribution.



IceCon® & IceCon® Compact:

GEA's patented unique solid-liquid separation solution for freeze concentration. Suitable for the production of liquid food concentrates.



Oslo Crystallizer:

Fluidized bed crystallizer with the ability to grow the largest crystals at elevated retention time.



GEA has several test centers for product and process testing equipped with laboratories and several crystallization and freeze concentration pilot plants.



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