Brennan & Co Industrial | CHRIST

Drying Methods for Laboratory Freeze Drying Systems

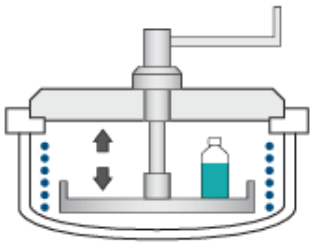


Freeze drying is the most gentle drying method where preserving activity, morphology, and chemical integrity is essential, making it the preferred choice in laboratories when product quality and integrity matter most. It is available in two process configurations: Single Chamber Drying and Double Chamber Drying.

Single-Chamber and Double Chamber Methods

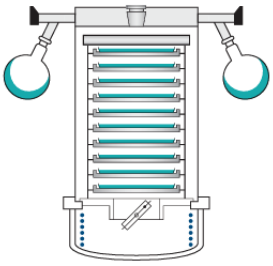
The Martin Christ freeze drying systems with the LSC-plus controller set standards for application diversity and process control. The modular range of accessories enables application-specific system configurations that fulfil all requirements. Two different drying methods are available to handle virtually every task.

Single-Chamber Method



With this unique configuration, the product is frozen inside the ice condenser chamber and then dried. This method is particularly suitable for substances with a low freezing point or thermally unstable substances. In this method, the shelves are located directly in the ice condenser chamber. Freezing can also be assisted by a fan. A sealing device for vials can optionally be used.

Double-Chamber Method



With this configuration the product is separately pre-frozen and then dried above the ice condenser chamber. This method allows a large variety of accessories to be used. An intermediate valve can be used to separate the product chamber from the ice condenser chamber for the pressure rise test.

Martin Christ – a leading innovator in laboratory freeze-drying, known for delivering precise, reliable drying methods across both single-chamber and double-chamber lyophilizers.

Perfect Process Operation for first-class products

Optimal process control and reproducibility for quick and reliable freeze drying

Martin Christ are the leading manufacturer of freeze drying systems, with over 75 years of experience in all aspects of freeze drying, including devices for special applications. We offer you a closely graduated series of systems for product-specific freeze drying with a wide range of optimization options. The highly diverse, modularly structured range of accessories allows the laboratory freeze drying systems to be used for a wide variety of tasks.

Outstanding products thanks to superior technology and comprehensive service

Martin Christ developed the LSCplus control unit, featuring intuitive operation, for better process management and process control of freeze drying systems. It is used in all laboratory and pilot freeze drying systems and enables perfect control matched to the process concerned. A variety of PAT tools are integrated and offer excellent opportunities for product development and automatic control of the process sequence.

The best possible overall system for advanced applications

- Innovative LSCplus-controller with colour touchscreen
- Manual or automatic processes
- Easy operation with Wireless Shelf Technology (WST)
- Precise regulation of shelf temperature for uniform temperature distribution
- Drying chamber above the ice condenser chamber for high sublimation performance and short process times
- Ice condenser chamber with internal condenser coils, all made of high-grade stainless steel
- Integrated hot gas function for quick defrosting
- Modular structure for an extremely wide range of applications
- Extensible with numerous accessories

The laboratory freeze dryers in the LSC plus series are available in several sizes with a wide range of accessories to match individual applications.



Alpha 1-4 LSCplus
Alpha 2-4 LSCplus



Beta 1-8 LSCplus
Beta 2-8 LSCplus



Gamma 2-16 LSCplus



Delta 2-24 LSCplus