A Revolution in Lyophilization

LESS TIME, LESS API, MORE DATA

MicroFD®
Are you ready for the revolution?

The MicroFD® from Millrock Technology changes freeze drying research, development, and cycle transfer forever—a small-scale lyophilizer that delivers more with less:

- **Total control over both the freezing and drying phases**
- **Real-time data for analysis and optimization**
- **Less of your valuable API, time, and costs**

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**Proven to Develop Transferable Protocols**

The MicroFD delivers a R&D and Cycle Development freeze dryer that:

- Takes the guesswork out of protocol development
- Uses less of your valuable product for R&D
- Enables analysis and optimization with as few as 7 vials
- Determines Kv, Sublimation Rate, Rp and other critical process parameters

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“Miniaturisation of freeze drying equipment provides the opportunity to gain useful product and process information by reduced consumption of material and time.”

Three Steps to Faster and Smarter Protocol Development

Step 1 - Protocol Analysis

Analyze your existing protocol by collecting the critical process parameter data for both the freeze drying and primary drying cycles, including Heat Flow, Product Temperature, Mass Flow, Kv, Rp, and more, determined by the most advanced Process Analytical Technologies. Why use outdated technologies that provide only intermittent monitoring and extensive calculations to predict critical process parameters? With the MicroFD, you get **real-time, continuous process measurement and unparalleled control**.

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Step 2 - Cycle Optimization

Save money and time by developing robust products with the shortest freeze drying cycle times. The MicroFD provides you with the tools to optimize both your freezing and primary drying cycles, in order to develop the shortest freeze drying time and critical process parameters for cycle transfer. The MicroFD is the first system of its kind to deliver this level of optimization and data to the freezing cycle.

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Step 3 - Cycle Transfer

Scale up, scale down...the future lies in both directions.

With the optimized critical process parameters, you can use the MicroFD for scale-up of new freeze drying protocols, or scale-down analysis and troubleshooting of existing protocols.
When you purchase a Millrock product, you get more than a freeze dryer. You get a long-term partner delivering industry-changing innovations, high-performing products, and on-call expert support. Contact us to learn more about how Millrock Technology can partner with your business to provide the highest-performance, advanced freeze drying services.

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