

A New Standard of Cold Storage Is Here

“Modern” compressor refrigerators were invented in the 1800s, and while the world has changed, medical refrigeration has not. With something as critical as patient safety, it’s time to expect more from medical-grade refrigeration.

Phononic’s medical cooling technology is nothing like antiquated compressor-based refrigerators. By replacing compressors with solid-state cooling, our refrigerators offer significantly better temperature stability and uniformity, more storage capacity, and are quieter, cleaner and safer, without using toxic or flammable chemicals.

In the words of Gigi Davidson, Chair of the USP Compounding Expert Committee, “Phononic will revolutionize refrigerator capability in a sterile compounding cleanroom environment!”



How Healthcare Systems are Ensuring USP <797> and USP <800> Compliance with Phononic: Real World Cleanroom Examples

Phononic Customer Success

In 2012, the Centers for Disease Control (CDC) launched an intensive, multistate investigation into an outbreak of fungal meningitis. The common agent of transmission was revealed to be medication compounded under unsterile conditions, which ultimately resulted in 64 deaths and over 800 illnesses.

In response to this contamination and its tragic consequences, the United States Food & Drug Administration (FDA) designed healthcare standards USP (United States Pharmacopeia) <797> and USP <800> to ensure sterile preparation and handling practices for hazardous drugs. With an expected deadline of December 1, 2019, healthcare systems must begin evaluating their compliance with the guidelines. Potential **renovations could cost over \$100,000 and take months to complete**, and failure to comply can result in fines, suspensions or loss of license.

Why Your Current Refrigerator Won’t Make the Cut

According to the USP <800> guidelines, when compounding hazardous drugs:

- Environmental chambers must operate at a negative pressure.
- Pass-through refrigerators can no longer be used.
- Conventional refrigerators must be vented outside the room.
- Dedicated refrigeration needs to be maintained.

If it seems like conventional, compressor-based refrigerators just aren’t built for USP <797> and <800> compliance, that’s because they aren’t. But there is a refrigerator that is. Built using solid-state technology instead of compressors, Phononic refrigerators are low-exhaust, without grease, oil or particulates. They are **the only medical-grade refrigerators ready for use in cleanrooms** that meet USP guidelines without any necessary renovations or special ventilation.

Don't Let a Cleanroom Renovation Clean Out Your Budget

Before developing costly construction plans for ventilation, consider switching to a refrigerator that can be immediately used (and easily moved) in a cleanroom environment without additional dedicated ventilation – a solid-state refrigerator.

While discussing compound refrigeration at the NC State University College of Veterinary Medicine, Director of Clinical Pharmacy Services Gigi Davidson consistently gave Phononic the highest marks for **reducing possible contamination**, facilitating **sterilization** and providing **noiseless operation**. She also commended the **data tracking** and **climate fluctuation notification** features.

Phononic is **the simple choice for compliance** with USP <797> and <800> because:

1. No special ventilation required.

Unlike refrigerators with compressors that generate and disperse particulates, solid-state refrigerators do not require added measures for venting outside of the room. Phononic refrigerators are USP <797> and <800> compliant, allowing you to avoid costly renovation projects to ensure the compliance of conventional refrigerators.

"If we were putting conventional refrigeration systems into our existing cleanroom, we would need venting behind them to pull all the particulates out of the room. We didn't want to spend tens-of-thousands of dollars in renovations to accommodate that. With its compressor free technology, Phononic takes that ventilation concern off the table because it's a completely clean and closed system."

- Josh Delp, Director of Pharmacy Services,
MedStar Good Samaritan Hospital


MedStar Good Samaritan
Hospital



2. Superior temperature stability and lower heat output.

Phononic's solid-state medical-grade refrigerators use constant monitoring and continuous adjustment to deliver far more stable temperatures for safer storage. In addition, solid-state cooling delivers 40% energy savings and a cooler working environment than conventional, compressor-based systems. This lessens the burden on your facility to maintain temperature and environmental control.

"We store all of our chemotherapy drugs in our Phononic refrigerator inside the negative pressure cleanroom. It is equipped with a web-based alarm that can monitor and report temperatures that are out of range."

- Gigi Davidson, Director of Clinical Pharmacy Services
at NC State University College of Veterinary Medicine
and Chair of the USP Compounding Expert Committee

 **NC STATE**
UNIVERSITY



3. Easy to clean and maintain for a 100% sterile cleanroom environment.

A modern, simple design makes the solid-state refrigerator easier to clean than refrigerators that use grease and oil and comprise hard-to-reach coils. And without compressors or mechanical forces, there are fewer moving parts that weaken over time and fail. This translates to less preventive maintenance, increased dependability, and simpler service and repairs when needed.

"It is easily cleanable and easily moveable. The ability to put a Phononic refrigerator in the cleanroom has saved us thousands of steps and hours."

*- Gigi Davidson, Director of Clinical Pharmacy Services
at NC State University College of Veterinary Medicine
and Chair of the USP Compounding Expert Committee*



Phononic's unrivaled approach to solid state cooling is breaking the boundaries of semiconductor innovation to deliver unprecedented temperature control and energy efficiency. From counter-top freezers and refrigerators to pinhead-sized fiber optics, Phononic's technology takes infinite forms to unseat the wasteful and unreliable cooling technologies of the past, which depend on bulky compressors, noisy fans and noxious gases simply not suited for the modern world. Phononic has already transformed the way life-saving drugs and vaccines are protected, data is transmitted and food and beverages are sold, stored and transported. The company has been named to the CNBC Disruptor 50 list for two consecutive years, and received the US EPA's 2017 Emerging Tech Award, R&D 100 Award, Global Cleantech 100 "Industrial Innovation Company of the Year" Award and more. For more information visit www.phononic.com or follow us on Twitter @Phononic_INC

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