

What you need to know about ultra-low temperature freezers

By STEQ America. November 9, 2016



Research and Markets have released the Global Biomedical Refrigerators and Freezers Industry 2016 Market Research Report. Analysts have forecasted this market to grow at a Compound Annual Growth Rate (CAGR) of 4.26% during the period 2016-2025.

This market is expected to have substantial growth, in part, due to the growing number of healthcare facilities and blood banks in North America, and the fact that few storage items in the lab hold more precious contents than an ultra-low (ULT) freezer. The demands noted above are not the sole implementations for this equipment.

What are biomedical freezers and refrigerators commonly used for? Examples of storage applications include:

- Biological reagents
- Bone marrow
- Blood and blood derivatives
- Specimens
- Stem cells
- Sperm
- Medicines
- Vaccines
- Ribonucleic acid (RNA)
- Flammable chemicals
- Animal DNA
- Food

What's driving the market increase for ULT freezers?

One substantial reason is the increasing demand for personalized medicines and vaccines, and the increase in cellular therapy. Apart from the ever-present pharmaceutical industry, educational institutes - particularly those involved in research and development, have also contributed to the expanding use of biomedical freezers and refrigerators. Zoos and animal foundations perform tests on deceased animals to find out the cause of death and so they use -85°C ULT freezers for the storage and cooling of these test samples. In the ever-expanding offshore/oil industry, equipment is exposed to extremely low temperatures in the drilling process (potentially down to -60°C). Suppliers of this equipment are requiring ULT freezers to test and document the ability of those materials to withstand the freezing temperatures. This is also the case for airlines introducing new components into their aircrafts. Manufacturers need to ensure that their components can function in 62°C conditions. Over a short period of time, sushi companies have become a sizable consumer of ULT freezers, wanting to preserve their high quality, expensive seafood. Uses for ULT freezers visibly transcend across a broad spectrum.

Storing samples at ultra-low temperatures is a delicate process, especially in a case where the stored items are high value drugs or irreplaceable samples of materials and organisms such as DNA, blood and cells. Researchers and clinicians rely on having an effective and efficient cold-storage solution in order to maintain these precious samples or biological products. As some researchers know all too well, samples stored in ULT freezers are susceptible to thawing due to instances of power outages, mechanical failures, or even a door left slightly ajar. The failure of a ULT freezer will not only result in financial loss but it also means potentially losing years of research, time and effort. Take for example, the story of Susan Zolla-Pazner, who was working in a laboratory on the 18th floor of the Veterans Affairs (VA) New York Harbor Healthcare System, on the development of HIV Vaccines and new diagnostic tests for tuberculosis when Hurricane Sandy hit in 2012. The moment she realized that there was power loss in her laboratories, was the same moment she realized that without electricity, the freezers that contained samples such as specimens that had been collected and generated for over 25 years, were now in peril. Recognizing that her current freezers were undoubtedly useless without power, Susan and her team resorted to topping off the 15 liquid nitrogen tanks containing the specimens and proceeded to climb down 18 floors in order to save the samples, and years of work. This is just one example of the paramount part a quality ULT freezer plays in research laboratories.

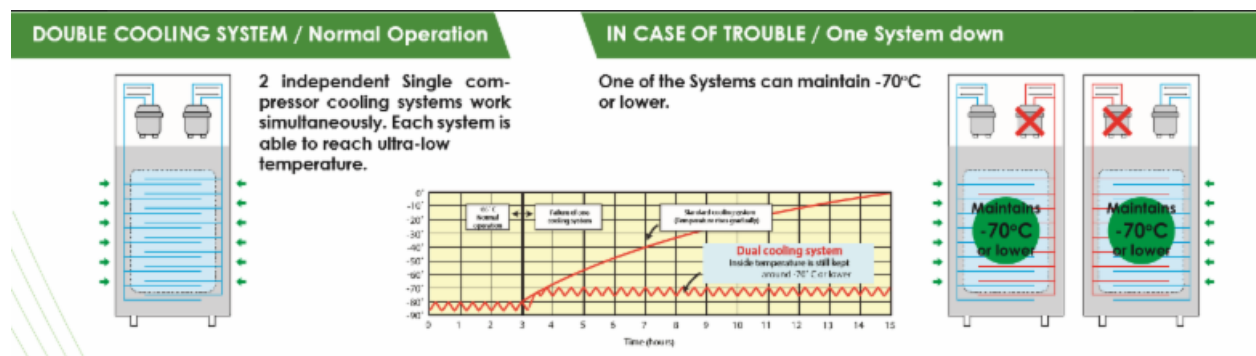


ULUF 65
Undercounter or Benchtop Mod

In the prior mentioned Research and Markets 2016 report, Arctiko was named a key player in the Global Biomedical Refrigerators and Freezers market. They are a Danish company and an awarded manufacturer and worldwide distributor of cold chain solutions, specializing in biomedical freezers and refrigerators. Arctiko have created the most innovative and sophisticated solutions for your samples with their range of ultra-low temperature freezers. Pfizer, Merck and J&J are just some of the distinguished companies in the

pharmaceutical industry that are already using Arctiko products. Their ULT freezers are also now present on all Royal Caribbean Cruise ships because of their ability to preserve the quality of sushi ingredients like nothing else on the market.

Where the standard for ultra-low temperature freezers usually starts at -70°C in the United States, products in Arctiko's ULUF series start at -86°C . The ULUF -86°C series is also produced with the patented single compressor technology that offers the greatest temperature stability above all others in its category worldwide. The single compressor cooling system uses just one compressor and one cooling cycle. This single-stage technology system has a unique structure that ensures easy maintenance, less heat dissipation, low energy consumption and noise reduction. The traditional cascade cooling system that comes with other ULT freezers on the market requires two compressors working together has a more complex structure with many parts and a higher failure rate, which will affect the cost of ownership during the lifetime of a ULT freezer. Arctiko's single compressor system has a more simplified structure of the cooling system and electrical circuit, which reduces the failure rate. Arctiko also offers a dual refrigeration system with two separate cooling systems. With this range, in the unlikely event that one system should fail, the freezer will still maintain -86°C until the problem is solved.





CO2 backup for optimized safety

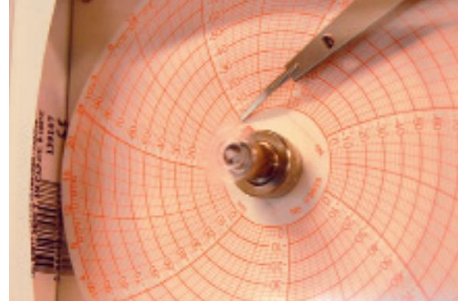


Chart recorder for monitoring temperature

Reliable, cost-efficient, innovative cold-storage equipment plays a vital role in keeping invaluable samples and biological products safe and preserved so that important research can continue, and so that patients are able to receive the necessary treatment required to live healthy, stable lives. It also plays a crucial part in testing the ability of material components to withstand freezing temperatures when attached to equipment or aircrafts involved in keeping people safe every day. It's because of these reasons that the biomedical freezers and refrigerators market is set to soar in the coming years. There's no time like the present to invest in a quality ULT freezer with enhanced security features and be sure to work with a vendor with proven market performance.

*Contact **STEQ America** for additional technical information or a customized quote today*

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About STEQ America

STEQ America is dedicated to helping biotechnology and pharmaceutical companies find the right information and solutions to be leaders in their industry. We do this by providing premium products that feature the latest, most innovative technologies, with the highest standards that come with reliable longevity.

What we can offer

European engineered and manufactured solutions for dissolution, disintegration, hardness, friability, blister density, granulate and powder flow testing for the pharmaceutical, veterinary, chemical, food and biotechnology industries, with a focus on laboratory needs and research and development. We also offer solutions for the storage of hazardous and flammable materials, cleaning and drying in pharmaceutical manufacturing environments, and bio-medical freezers and refrigerators. Ask us about our mobile, autonomous cleanroom containment options.

References:

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