

CASE STUDY

ThermaSmart® Pro
for Refrigeration OEM

**SINGLE
USE
SUPPORT.**
PIONEERING BIOPHARMA



Thermaflex Enables High-Performance Cryogenic Freezers

ThermaSmart® PRO applied in the manufacturing process of customized cryogenic freezer from Single Use Support.

Single Use Support

Single Use Support is a leading biopharmaceutical company in Austria, specializes in cutting-edge fluid management solutions tailored for the pharmaceutical industry. With a focus on minimizing product loss and preserving the integrity of liquid substances throughout all biopharmaceutical processes, Single Use Support offers a wide range of solutions, including cryogenic storage freezers for cryogenic freezing applications.

Project Goal

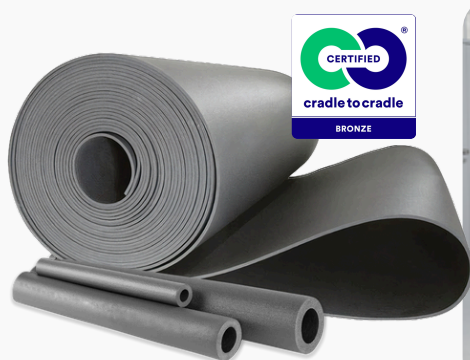
Single Use Support was tasked with developing a **customized freezer** for a client, a global **biopharmaceutical** company. The freezer needed to maintain temperatures ranging from **-80°C to +40°C**, essential for the cryogenic freezing and thawing processes involving biomolecular materials. The insulation material plays a crucial role in achieving this critical requirements within project timeline without changing the technical design of the freezer.

In addition to handling the required temperature range, it was crucial to ensure insulation with zero water absorption, promoting optimal system performance and preserving the integrity of pharmaceutical substances with lower energy consumption. Another challenge was the limited installation space, requiring careful planning and customized insulation solution to ensure optimal performance within the given constraints.

The Solution

After testing various insulation materials available in the market, Single Use Support found that none met their stringent technical and environmental requirements, including: **no condensation during significant temperature changes; maintenance-free operation; Hygiene standards; and Sustainability**. Single Use Support then turned to Thermaflex and tested ThermaSmart® PRO insulation. The test result was very satisfying, and proved that ThermaSmart® PRO is the only tested material capable of maintaining stable performance during frequent freezing and thawing cycles, the perfect solution meeting all the criteria.

Thermaflex provided a tailored insulation solution for the customized cryogenic freezing system, the solution comprised ThermaSmart® Pro Tubes, Sheet, prefabrications, installer training and project support. Experience the benefits of **ThermaSmart® PRO** for your insulation needs.



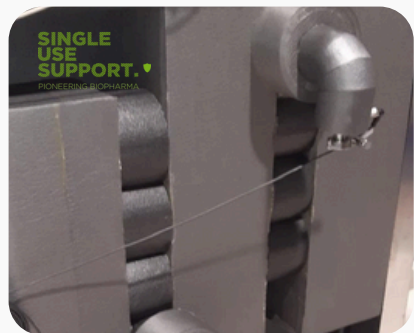
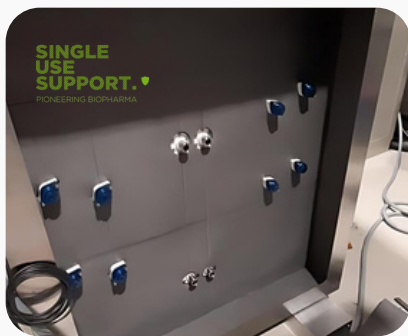
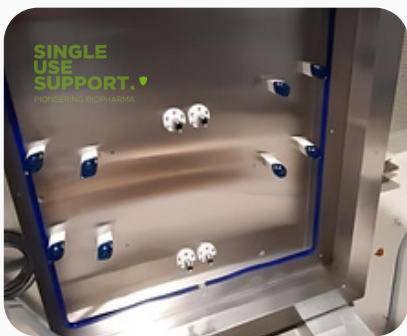
Project Process

The project started in September 2023 with the request for concept. Thermaflex team developed and implemented a customized insulation solution for the freezer, capable of operating between temperature ranging from **-80°C to +40°C**.

According to the tests performed by SUS, ThermaSmart® PRO was the best solution due to its ability to operate within the required temperature range. More importantly, its closed-cell structure ensures **minimal water absorption** thus **condensation free**, and stable performance during freezing and thawing cycles.

After the concept creation, the team moved on to the **pilot installation** in early October 2023. The project passed through a phase of **optimizing** the insulation concept, with preparation for serial production to be completed by mid-November 2023, with a very tight project schedule. Throughout this project process, Thermaflex provided specialized training and timely support to achieve the best results and ensure high quality implementation.

The implementation started by removing pre-assembled components of the freezer, followed by insulating the freezer back wall with ThermaSmart® PRO Sheet, and the distribution pipes up to the arches with ThermaSmart® PRO Tubes. The corners of the pipes were covered by installation boxes made with ThermaSmart® PRO Sheet. The ease of making high-precision elbows and T-pieces ensured the best insulation value and a seamless finish.



Result & Benefits

Partnering with Thermaflex in technical insulation projects has demonstrated significant benefits:

- **Meeting Project Timeline:** Thermaflex's expertise, quick response to customer needs, and collaborative approach as a **trusted OEM partner**, enabled SUS to meet their customized product development timeline.
- **Sustainability:** With **Cradle to Cradle Certified®**, EPD, REACH, and RoHS compliance certificates, ThermaSmart® PRO meets the highest sustainability requirements for many OEM clients like SUS.
- **Cost Saving from Top Performance and Minimal Maintenance:** ThermaSmart® PRO is the only material in the market capable of maintaining stable insulation performance during **freezing and thawing** cycles. The material's close-cell structure ensures a **condensation free** environment. Its high insulation value and consistent performance significantly **reduces energy consumption and maintenance costs** while protecting the quality of medical products.

Conclusion


The insulation solution was tailored for SUS to meet their client's needs for customized cryogenic freezers. This collaboration showcases Thermaflex's expertise in developing customerized high-performance insulation solutions that address complex technical and environmental requirements.

If you are facing similar challenges as SUS, **Contact Thermaflex Now!**

Customer quotes

"I would like to thank Andre Jonscher, Goesta Seubert and the entire Thermaflex team for your dedication and hard work. We had difficulties professionally insulating our cooling distributor, particularly with regard to the project timing. Working in the -80°C range, we found it impossible to achieve proper insulation on our own. Thanks to your quick and straightforward assistance and commitment, we were ultimately able to successfully complete the project. Your material offers many advantages over conventional insulation, which helped us impress our customer. I look forward to many more successful projects in collaboration with Thermaflex."

Markus Huber - Product Manager of Single Use Support GMBH

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