



TECHNICAL BULLETIN

SANYO VIP® Plus Technology

VIP® Plus Technology vs. VIP® Technology in Ultra Low Freezers

The evolution of SANYO's Ultra Low Cryogenic freezers has moved from conventional PUR (Poly Urethane) insulation, to V.I.P® (Vacuum Insulation Panel) with PUR, to the future. A new line of freezers utilizing VIP® Plus Insulation with PUR technology.

What is VIP® technology?

VIP® (Vacuum Insulation Panel) panels use conventional freezer insulation with a twist. The inner core is constructed of polyurethane, but the panel is vacuum sealed which creates an additional insulation layer about 50% thicker than just with the polyurethane alone. The VIP panels are sealed in mylar/metallic film and placed strategically inside the walls of the freezer. The overall effect is the thinning of the ultralow freezer walls (by about 50% compared to conventionally insulated freezers) which creates an increase in internal storage capacity of 30%.

What is VIP® Plus?

VIP® Plus panels are a **BRAND NEW** technology. It is a new material that utilizes a similar concept, but implements a micro fiberglass core. This allows for further reduction of the thickness of the VIP panel by more than 50%. More importantly, this reduces the thermal conductivity by more than 60% (increasing the insulation value by more than 60%). The main advantage is that increasing the insulation value decreases the overall energy consumption of the freezer. For example, the better a house is insulated, the more energy is saved from maintaining interior temperatures (less energy is needed to remove heat from the interior of the freezer).

Why not just reduce the inner wall thickness again by 50% again?

Although this sounds like the simple solution, the reduction of freezer walls has negative physical limitations, such as room for evaporator coils. It also limits the surface area to seal the door gaskets.

Technology?

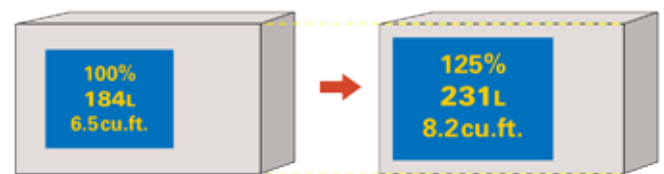
SANYO first utilized the VIP® Plus technology in the MDF-C2156VANC -150°C cryogenic freezer and the MDF-C8V -80°C chest freezer.

Advantages to VIP® Plus:

- Extremely energy efficient. Whatever rate a company is paying for electricity, the consumption over 24 hours is about 50% less than a smaller, conventionally insulated unit.
- Amperage draw. With amperage draws reduced, internal heat load on the compressors which lead to less wear on the compressor.
- Lab Placement. Our MDF-C2156VANC uses a 15 amp plug and runs at no more than 8 amps. The competitor unit requires a 30 amp plug (can be hard to find) and draws 17 amps while running.



Maximized Storage with smaller VIP® Plus Footprint



VIP® Plus