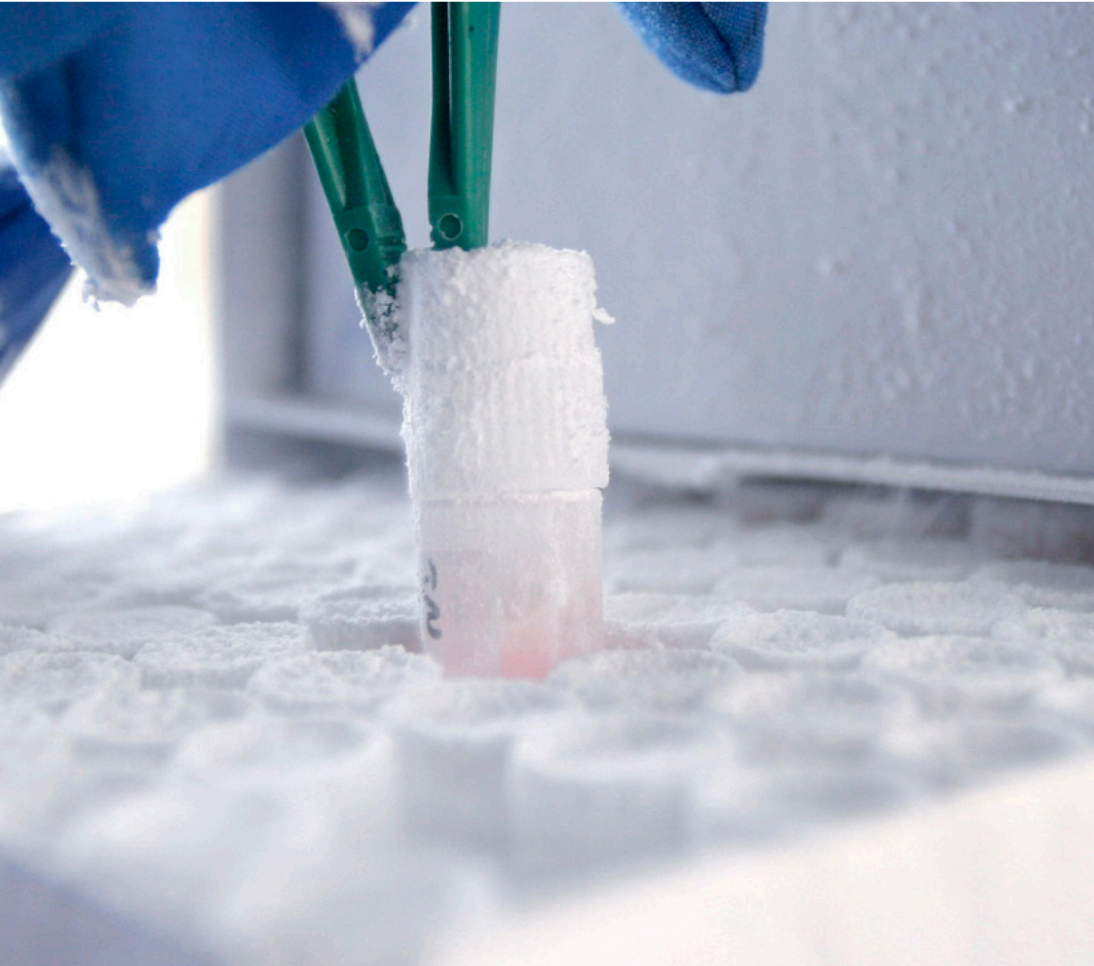


**Panasonic**

Life Science  
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PROTOCOL

PRESERVATION

**Preventative Maintenance  
for your -86°C Freezer.**

Discovery powered by  
precision™

# Preventative maintenance for your -86°C freezer.



## **TwinGuard®** Series

MDF-U700VXC-PA | MDF-U500VXC-PA



## **VIP®** Freezer Series

MDF-U76VC-PA | MDF-U76VC-PA  
MDF-U56VC-PA | MDF-U53VA-PA  
MDF-U33V-PA



## **PRO** Series

MDF-U7586SC-PA | MDF-U5586SC-PA

## What is Preventative Maintenance?

It is the routine servicing of equipment by certified personnel to ensure it is in satisfactory operating condition. This usually will involve inspection, detection, and correction of possible failures before they occur or develop into major failures.

## Why is Preventative Maintenance important?

Here are some reasons to routinely evaluate your equipment:

- Detect failures proactively.
- Optimize energy consumption.
- Ensure proper equipment performance.
- Improve longevity of equipment.
- Meet the manufacturer's warranty and compliance.

**TwinGuard®** Series

## What maintenance can you do as a user?

Although a trained service technician should always complete advanced maintenance, there are several things you can do yourself to ensure your freezer will provide you with the optimal return on investment.

### 1. Clean the condenser filter.

#### Why clean the condenser filter?

Dirty condensers can lead to many issues because they lose their ability to transfer heat from the refrigerant to the ambient environment. As a result, the temperature and pressure of the refrigerant rises and causes the compressor to pump at elevated conditions. Eventually, if the refrigerant does not sub-cool to design specifications, there can be a loss in effective latent heat.

#### How often should you clean the condenser filter?

This should be performed every 2 to 3 months. If your lab is particularly dusty or there is heavy foot traffic near the unit, then it should be completed more frequently. Manufacturers typically place the information about how to clean the filter under the maintenance section in your instruction manual.

### 2. Cleaning the door gaskets.

This should be performed at least once a month. First, check the gaskets for leaks or air infiltration, which can be easy to spot by a streak of frost at the

failure point. Air infiltration causes warm air to enter the chamber. Because this air has weight and moisture and must be removed, the compressor works harder to cool down, thereby raising energy costs and affecting your samples. Always use a cloth to wipe away frost, so you do not puncture the gasket.

### 3. Remove frost or ice build-up.

Excessive door openings may cause frost and ice build-up in your freezer. To prevent this from occurring, periodically scrape the frost and ice from the inner doors, chamber, and vacuum release port. Vacuum release ports are meant to relieve the vacuum that occurs from opening and closing the freezer door. (In Panasonic freezers, they are located on the same side as the latch.) Use the special tool that came with the freezer to remove the ice or frost out of the vacuum release port. Skipping these steps can cause damage to the outer door latch and the gasket, thereby affecting the performance of the freezer in long run.



# Tips for better sample storage in your -86°C freezer:

## 1. The significance of storing your samples a uniform -86°C:

Ultra-low temperatures will halt the metabolic activity of biological samples and cell stocks at -86°C, thereby preserving their viability long term. Because temperature conditions can affect the integrity of your samples, it is crucial to remember the importance of having uniformity within your freezer, regardless of where your samples are located within the unit. Although a full freezer will have better temperature uniformity than an empty one, a good quality freezer will make the biggest difference in preserving your samples.

## 2. Minimize ice build-up:

- Position the freezer away from vents that blow air into the room or on the freezer.
- Keep door openings to a minimum and to short lengths of time (30 seconds to 1 minute is normal).
- Maintain door latches securely closed.

## 3. Think Igloo:

A sample covered in frost will be warmer due to the insulating characteristics of frost. Prevent this from occurring by implementing good freezer maintenance.



## 4. Frost Issue:

If you have ever had difficulty closing your freezer door tightly, it is most likely a result of frost build-up. Incorrect sealing of your freezer door can have a big effect on its ability to transfer heat through the freezer's walls, where the refrigeration coils are located, also impacting its temperature recovery rate.

## 5. Leverage Your Freezer Racks:

Because heat exchange occurs very rapidly, anything you can do to minimize this helps your samples remain in a state of slowed metabolic activity. Know where your samples are located before retrieving them to reduce exposure to ambient temperatures. Likewise, return boxes immediately after sample retrieval.

## 6. Remember to ease your samples into a -86°C environment:

Standard operating procedures may require that samples be placed on a Styrofoam container and then into a -20°C environment before introducing into an ultra-low temperature freezer.

## 7. Honor your freezer alarms:

If the door alarm goes off, then you have kept the freezer door open too long. Usually, you won't see the temperature in the freezer start to rise for several minutes after a door opening, due to the slower equilibration in a -86°C freezer. However, be aware of the alarms your freezer has so that you can quickly correct any abnormal conditions before they negatively affect your samples.