



# Our 10-Year ULT Journey: 10 Insights for Today's Laboratories

As we celebrate 10 years of supporting laboratories with ultra-low temperature storage, we've had the privilege of seeing first-hand how ULT freezers impact everything from sample integrity to day-to-day lab efficiency. Along the way, we've learned that performance at  $-80^{\circ}\text{C}$  isn't just about hitting a temperature - it's about reliability, usability, sustainability, and long-term confidence. Here are 10 of the most important things we've learned about ULT freezers over the past decade.

## 1. Routine Care

Regular user maintenance can extend the life of your freezer, keeping it running more efficiently for longer as well as more reliably. Defrost once a year, de-ice once a quarter and clean your filters every month.

## 2. Smart Racking

Racking is the one of the most cost-effective ways to get the most out of your freezer. By racking your freezer you maximise space and minimising sample picking times. This limits ice build-up, prevents undue wear and reduces energy consumption.

## 3. Back-Up Capacity

Having a back-up freezer, as large as your largest freezer, is an essential part of good freezer practice. Combining this with racking can turn a freezer failure from a 2-hour panic into a 5 minute decant. Maximising sample integrity and minimising risk.

## 4. Disaster Planning

A failure to plan is a plan to failure. Ensure you have disaster planning SOP's in place for samples so all users know what to do when a freezer fails. This can be a full disaster recovery plan or a simple list of instructions on back-up freezer usage and points of contact. Having a plan prevents panic.

## 5. Replacement Planning

Having a plan to replace aging legacy ULT freezers can help reduce the impact your cold storage is having on the planet and reduce costs associated with running and servicing the freezer. Service on older units can get expensive as parts become harder to come by and the compressors begin to fail. New units offer low energy consumption, higher performance and a more reliable system.

## 6. Preventive Maintenance

A preventative maintenance contract will allow you to proactively prevent issues and limits expensive reactive repairs while helping to extend the life of your ULT freezer. Keeping critical freezers on a regular service plan can help you manage the risk to your samples and in some situations is required for regulatory compliance.

## 7. Remote Monitoring

Wireless monitoring is essential for monitoring critical samples and is a small expense when you consider the value of the samples inside your freezers. Keeping the contact list up to date, alarm parameters accurate and your users trained ensure your samples are monitored should the worse happen.

## 8. Gasket Integrity

Regularly check the state of the gasket seals on your freezer. Damage to these can cause ice build-up which can lead to undue wear on the refrigeration system and damage to other parts such as inner doors and handles.

## 9. Stay Calibrated

Keep your monitoring system and your freezer calibrated to ensure that your samples are kept at optimal storage temperatures and help prevent nuisance alarming from your monitoring systems.

## 10. Optimise Setpoint

Reducing your set temperature to  $-70\text{C}$  can be a great way to reduce the energy consumption of your ULT freezers as well as the strain on the refrigeration