

AI-Powered Freezer Health Score: Early Warnings. Smarter Decisions.

Protect What Matters Most, Before It's Too Late

Whether it's cell lines, clinical samples, or ready-to-use biologics, freezers protect the science at the heart of modern labs. But standard alerts and alarms only tell you when something's already gone wrong ...

Elemental Machines' AI-Powered Freezer Health Score adds an additional layer of asset intelligence, helping your team detect anomalies in freezer performance which can show early signs of failure, helping you prioritize maintenance and protect against costly losses before they happen.

Why It's Needed, Even If Everything Looks Fine

If a freezer is technically "in range," it might seem like everything's okay. But what if it takes twice as long to recover after a door opens? What if the compressor is cycling more than usual? These subtle performance drifts can be indicators of performance degradation. They often go unnoticed — until it's too late.

"Even when everything looks normal on the outside, the Health Score shows us what's going on behind the scenes. It's a small step that protects millions in R&D."

Director of Operations, Biotech Client



That's where the Freezer Health Score comes in. It continuously analyzes performance patterns, flags concerning trends, and sends alerts when something isn't functioning the way it should in a perfectly tuned system. It's an extra layer of protection [built for cold storage](#).

What You're Really Protecting

Our solution doesn't just protect freezers. It protects the science, time, and effort behind what's stored inside:

- In one unfortunate but avoidable case, a customer ignored the Health Score's warnings and lost over **\$100,000 in pharmaceutical material** due to freezer failure
- Another client told us their cold storage inventory ranges in value from a few hundred dollars to **over \$1 million per unit**, some of it being irreplaceable; Freezer Health Score continues to successfully protect them from catastrophic failure
- And in a devastating example from Sweden, a freezer failure destroyed **over 20 years of research** at a major university, with damage so severe, it spurred a national investigation and a financial loss of ~500m kronor (£37m)¹

The Proactive Edge: Better Decisions, Less Downtime

Freezer Health Score makes lab monitoring smarter. By adding long-term signal analysis to standard alerting, it helps you:

- Detect early signs of failure from performance drift
- Prioritize service and maintenance before breakdowns occur
- Extend freezer lifespan and reduce unplanned downtime
- Avoid scientific loss and ensure continuity across teams
- Free up time for people, instead of chasing failures

Paired with Elemental Machines' [NIST-traceable sensors](#) and custom, [cloud-based dashboards](#), this added intelligence empowers labs to act earlier and plan better, with **no extra IT burden or complex setup**.

The Hidden ROI of Prevention

The cost of a breakdown goes beyond a few spoiled samples. It can mean lost years of research, missed deadlines, and major financial damage. That's why leading labs treat our Health Score solution like the proactive safeguard it is. It protects high-value assets with a low operational cost, and it gives teams confidence that they're doing everything possible to stay ahead of failure.

Ready to Stay Ahead?

Freezer Health Score is already protecting critical science across the globe. Whether your team runs 3 freezers or 300, Elemental Machines delivers the visibility, context, and proactive edge you need to protect what matters most.

Protect your science before it's too late.

[Contact Us](#)

Reference

- ¹ Xing, J. [Janitor heard 'annoying alarms' and turned off freezer, ruining 20 years of school research worth \\$1 million, lawsuit says](#). CNN.com. Published 2023 June.

About Elemental Machines

Elemental Machines' Intelligent Operations Platform transforms raw lab and facility data into intelligence you can act on. Built by scientists and engineers who understand the demands of modern research and manufacturing environments, we connect the physical and digital worlds to simplify, optimize, and future-proof operations. From incubators to enterprise-level sites, our ecosystem combines wireless sensors, utilization tracking, custom dashboards, interactive floorplans, business intelligence tools, and seamless integrations with systems like LIMS, MES, QMS, CMMS, and ELNs, giving teams complete visibility, predictive insights, and audit-ready compliance tools. Leaders in science, facilities, and technology worldwide trust Elemental Machines to help them act faster, reduce operational risk, and shift from reactive to proactive management. With the industry's most expansive integration library and a robust partner ecosystem, we empower organizations to accelerate innovation, ensure scientific integrity, and get more value from every asset.