Is there an ENERGY STAR standard that I can reference when choosing lab refrigerators and freezers?

In late 2016, the Environmental Protection Agency (EPA) began ENERGY STAR™ certification for laboratory-grade refrigerators, freezers, and ultra-low temperature freezers. The EPA is working on Version 2.0 of the Laboratory Grade Refrigerators and Freezers specification,* making the allowable energy limits even tighter. Thermo Fisher Scientific has prioritized designing our cold storage products with the ENERGY STAR certification in mind, including our latest product, the Thermo Scientific™ TSX™ Universal Series Ultra-Low Temperature (ULT) Freezer.

The EPA's ENERGY STAR test method includes:

1. Standardized procedures and equipment to be used when measuring energy consumption for laboratory-grade refrigerators, freezers, and ultra-low temperature freezers.
2. A specific list of attributes and data that must be reported in whole when submitting for ENERGY STAR certification.
3. A specific list of requirements that must be met regarding the test conditions and equipment used to conduct the performance testing. The performance testing for this cold storage equipment includes both door opening testing and steady-state (no door opening) portions used in calculation of the overall energy consumption of the unit. While the procedure includes door openings, the door opening recovery times for the unit are neither submitted nor reported by ENERGY STAR.

* **https://www.energystar.gov/products/laboratory_grade_refrigerators_and_freezers_version_2_0_0**

Leading sample protection with transparency in sustainability

TSX Universal Series ULT freezers are designed to provide sample protection, energy savings, and environmentally friendly features and benefits.

Achieving sample integrity and energy savings

The performance and energy savings of the new TSX Universal Series ULT freezers are driven by our unique V-drive technology:

- The V-drive runs at variable speeds, adjusting cooling performance to the conditions inside and outside of the freezer
- When conditions are stable, the system runs continuously at a low speed, reducing energy consumption
- When there are frequent door openings, or samples are added to the freezer, the control system detects the activity and increases the drive speed to bring temperatures back to the setpoint quickly

Up to 33% energy reduction versus previous-generation TSX Series freezers

Thanks to next-generation V-drive cooling technology, TSX Universal Series ULT freezers deliver big efficiency gains compared to legacy TSX Series freezers:*

- TSX70086FA at 0.24 kWh-day/cu. ft. vs. 0.36 kWh-day/cu. ft. —a savings of 33%
- TSX60086FA at 0.27 kWh-day/cu. ft. vs. 0.40 kWh-day/cu. ft. —a savings of 33%
- TSX50086FA at 0.31 kWh-day/cu. ft. vs. 0.45 kWh-day/cu. ft. —a savings of 30%
- TSX40086FA at 0.36 kWh-day/cu. ft. vs. 0.49 kWh-day/cu. ft. —a savings of 27%

* Based on the ENERGY STAR protocol performed by a third-party test lab. Data on file, March 2024.

Environmentally friendly design features

- Natural refrigerants for lower environmental impact and higher cooling efficiency
- Water-blown foam insulation eliminates refrigerant out-gassing, common in other foam products
- Manufactured in a zero waste to landfill facility (93% recycling, 7% waste to energy)

Conclusion

ENERGY STAR–certified TSX Series ULT freezers are designed to offer significant energy savings for sustainable-minded labs.

Learn more at **thermofisher.com/tsxuniversalult**