

PRODUCT PROFILE

Think GAIA
For Life and the Earth

SANYO

SANYO Corporate GREEN Position— Think GREEN, Think GAIA

For over 30 years, SANYO has established a reputation as a leading manufacturer of precision biomedical equipment for life science, pharmaceutical, biotechnology, clinical, and industrial laboratories. SANYO has established a corporate-wide initiative—Think GAIA—to emphasize the company's commitment to energy conservation and environmental integration.

SANYO is committed to developing green technologies that provide energy efficiency resulting in lower operational costs with less impact on the environment.

GREEN Lab Focus

Laboratory facilities present a unique challenge for energy-efficient and sustainable design, with their inherent complexity of systems, health and safety requirements, long-term flexibility and adaptability needs, energy use intensity, and environmental impacts. The typical laboratory is about five times as energy intensive as a typical office building and costs about three times as much per unit area. Any efforts to reduce energy use and environmental impact are heavily impacted by special functional and health and safety requirements, which need to be considered in rating and benchmarking the overall environmental performance of a laboratory.

SANYO took the initiative to revamp and redesign newer refrigeration systems that would employ new, environmentally friendly refrigerants throughout the laboratory without compromising performance.

Elements of the SANYO ULT design that reflect GREEN initiatives are:

- CFC-free refrigerants
- RoHS compliance
- Energy efficiency
- Noise reduction
- Operating costs
- High-density storage
- Storage volume efficiency.

SANYO GREEN Advantage Summary

CFC-free refrigerants—SANYO was the first ultralow freezer manufacturer to employ non-HCFC R508 low-stage refrigerant, now recognized as today's industry standard and widely available. This nonproprietary refrigerant is available to refrigeration service professionals on the open market.

High-density storage—VIP® vacuum insulation panel cabinet: SANYO offers more usable storage volume within the same floor space than competitive models. The cost per cubic foot (or liter) of interior storage space is significantly lower in a SANYO ultralow freezer.

Ultralow refrigeration system—Allows for better temperature uniformity, permitting the entire interior volume to be used for long-term storage. This ensures greater system longevity and reliability by minimizing compressor operating temperatures, efficient location of evaporator systems around the interior chamber, and balanced refrigeration system.

Noise reduction—If operating noise from refrigeration compressors is excessive, the working environment is severely compromised. SANYO has included advanced noise abatement in all contemporary ultralow freezers, and noise reduction levels are well below those of competitive freezers.

Credit 8: Improve Laboratory Equipment Efficiency

Intent

Save energy with efficient laboratory equipment.

Requirement

Credit 8.0 (1 point)

Use Energy Star™ compliant equipment or equipment in the top 25th percentile for at least 75 percent of new Class 1 and Class 2 equipment and at least 30 percent of all Class 1 and Class 2 equipment. Acceptance of equipment in the 25th percentile requires a minimum of 4 different models that meet the functional needs of the research. If only 2 or 3 functionally equivalent models are available, acceptance requires selection of the most energy efficient model.

Credit 9: Right-Size Laboratory Equipment Load

Intent

"Right-size" mechanical equipment by improving estimates of heat-gain from laboratory and process equipment.

Requirements

Credit 9.1 (1 point)

Measure base usage of equipment electrical loads in a comparable laboratory space for each functional type of laboratory space and design electrical and cooling systems based on these measurements.

Credit 9.2 (1 point)

Design electrical distribution system to provide for portable or permanent check metering of laboratory equipment electric consumption. Design for safe access to electrical feeder enclosures and provide sufficient space to attach clamp-on or split core current transformers.

ISO 14001 environmental standard—This standard is applicable to any organization that wishes to implement, maintain, and improve an environmental management system and ensure its conformance with its own stated environmental policy.

Electrical standards—All SANYO products, including ultralow temperature freezers, are tested and certified by SGS NRTL (National Recognized Testing Laboratory) to ensure compliance with U.S. and international standards for electrical safety prescribed in 29 CFR 1910.7(c).

RoHS compliance—RoHS relates to the restriction of hazardous substances (i.e., lead, cadmium, mercury, chromium 6+, PBB, and PBDE) and reductions in environmental pollution. All SANYO ultralow freezers and components are now 100% compliant to RoHS standards.

LEED potential

LEED is a green building rating system that was developed by the U.S. Green Building Council in 2000 through a consensus-based process. LEED is a tool for buildings of all types and sizes. LEED certification offers third-party validation of a project's green features and verifies that the building is operating exactly the way it was designed to. LEED is a point-based system where projects earn LEED points for satisfying specific green building criteria. Achieving LEED certification is the best way for users to demonstrate that their building project is truly "green."

Lower energy use—More research buildings are conforming and adapting to energy-conscious directives such as LEEDs with the recommendation of energy-efficient laboratory equipment.

Efficient space utilization—biomedical: High-density storage is strongly advocated since laboratory design is focusing on making researchers share ULT storage space.

Laboratory equipment efficiency

Equipment loads in laboratories are typically much higher than commercial buildings and can vary widely, from 2 W/ft² to 15 W/ft². In addition to direct consumption, equipment loads also affect cooling energy use. Equipment loads are often overlooked as an area for increased efficiency. The EPC adds two credits to encourage reducing equipment loads. Credit 8 encourages the selection of energy-efficient laboratory equipment. There is little if any laboratory equipment that has an EnergyStar™ rating. The credit reflects the EnergyStar approach by requiring the selection of equipment that is above the 75th percentile in terms of efficiency. This will only apply when there is a choice of functionally equivalent equipment.

Another issue pertaining to equipment loads is that HVAC designers often overestimate the equipment loads and consequently oversize HVAC systems (chillers, fans, etc.). This can be avoided by getting a more accurate estimate of equipment loads by metering similar laboratory spaces, as required in credit 9.1. An additional credit is given for providing for metering.

Additional reading

ASHRAE/IESNA Standard 90.1—1999. Energy Standard for Buildings Except Low-Rise Residential Buildings. ASHRAE: Atlanta, GA.

LEED™ Rating System Version 2.0, U.S. Green Building Council. June 2001.