

focus on Laboratory Products

Green Washing: A Sustainability Checklist

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Outfitting a lab is no longer just about product features. The sustainability of a product has become just as important, if not more than its specifications. Planning a lab that meets today's requirements for sustainability is a top demand for lab planners and architects. Every part of the process, from the design of the room to determination of heating and cooling systems to the actual selection of fume hoods, ovens and lab washers, is driven by a greater plan to achieve ISO 14001 environmental management accreditation or to ensure the lab is more energy efficient than before.

Selecting products for the lab has grown beyond an analysis of features, benefits and performance to the sustainability measures of a product. In many cases, the more sustainability a product boasts, the higher the price tag. So how does the planner argue for the additional expense of high-end, high-performing green product in a market that is focussed on the bottom line? He or she has to delve beyond the features and benefits and examine the total cost of ownership of the specified product.

Where to Start

Take a good look at the manufacturer to determine if a clear sustainability programme is in place to develop efficient and durable products whose production, consumption and disposal have as little impact as possible on the environment. Check to see if the products are subjected to long-term terms to establish durability, and ask if the company certifies its own and suppliers' management systems according to international sustainability and social standards. A manufacturing company should be able to provide a report that includes facts and figures on production facilities and the life cycle elements of each type of cleaning system—from power, water and chemical consumption to recyclability of product materials, CO₂ emissions and waste. Statistics and examples of manufacturers' environmental competency are good ammunition to argue the extra expense of a sustainable product.

When it comes down to the actual product evaluations for environmental impact, each product category will differ. For laboratory glassware washers, for example, several aspects of the machine should be examined. Here's a quick checklist on washer requirements for planners who are looking to outfit their newest design with sustainable washers:

Construction materials: the washer chamber of a high quality machine is typically constructed from either Type 304 or Type 316L stainless steel (Type 316L has greater resistance to corrosion).

The sidewalls and ceiling are made from Type 304; while the floor and door are constructed from Type 316. Laser-welded seams outside the washer chamber are preferred over spot-welding, where corrosion could occur. In general, laboratory glassware washers fabricated from stainless steel have high recyclable rate.

Machine longevity: A laboratory glassware washer is an investment. Look for a machine that is factory-rated to last – for example 15,000 operating hours. If you use the machine six hours per day for 260 working days per year, the washer should last at least 10 years.

Pump life extension: filters upstream of the circulation pumps protect and extend pump life. For some applications, pumps can be fitted with a gentle start mechanism that will also contribute to maximum pump longevity.

Designed for energy and water efficiencies: cleaning systems designed for sustainability are engineered to use less chemicals and less water, which means less chemical effluent entering the ground water. Using less cleaning agents to get items clean can be accomplished by using powerful circulation pumps, high water temperatures and low water levels. A typical high-end manufacturer will use flow meters and pressure switches – rather than timing circuits – on all incoming washer lines in order to save water by allowing precise filling. A built-in water softener will enable detergents to work more efficiently and provide better cleaning if the water is hard. It is gentler on the washer and eliminates scaling. Manufacturers can adjust the performance of water softeners according to the hardness of the water, and can deactivate them if the incoming water is already soft.

Special efficiency and sanitisation performance features: these enhance product longevity, increase productivity in the lab and reduce energy costs as they prevent problems that impact the bottom line and the environment.

Glassware protection: delicate glassware, metal components and electronics are better protected if high volume water pumps operate at low pressure. This reduces unnecessary breakage and the safety and costs associated with it.



Heated dionised (DI) final rinse: A high-temperature DI final rinse is the best way to completely eliminate residue. This also eliminates the need for additional rinses.

High water temperatures: Sensors that monitor wash temperatures for incoming and circulating water ensure consistent temperatures for high temperature water sanitisation.

Reducing human error: to reduce human error, some larger models are fitted with a maintenance-free conductivity monitor and a spray arm monitoring system.

Machine noise level: under counter models should allow conversation in the lab without distraction. Larger models should operate at levels that are slightly less than those of casual conversation.

Overflow protection: look for washers to have a waterproof system. This will protect a lab from overflow water by shutting off the incoming water supply and alerting the user.

Accurate detergent dispensing: An automated liquid dispenser provides high levels of accuracy and eliminates potential user errors in the dosing process. The reservoir means less refilling between detergent container changes. Less detergent waste reduces chemical waste and costs.

Steam condenser: inclusion of a steam condenser eliminates the need for additional drying units. This avoids potentially hazardous steam from venting into the lab during operation. It also reduces the overall footprint.

Choosing not only a sustainable laboratory glassware washer, but other green instruments as well comes down to you understanding product specs in addition to a manufacturer's commitment to the environment. Knowing where you stand, where they stand and how your new green instrumentation will help you get there is the key to selecting sustainable lab products.

For further information on Miele Professional products, please visit www.miele-professional.co.uk or telephone 0844 893 0773.