THOMPSON RIVERS UNIVERSITY

Solutions for a Sustainable Supply Chain

Chemically Intensive Products

Cleaning and sanitizing supplies, facilities maintenance, landscaping maintenance

What's in this Factsheet?

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Myth Buster

It is not true that all green cleaning solutions are of low quality and clean poorly. There are many quality green solutions on the market that create long lasting suds and clean effectively.

Top Tips for Sustainable Chemically Intensive Products

1. Avoid the purchase of unnecessary cleaning products
2. Select cleaning products marked with eco-labels
3. Look for minimally packaged or bulk/concentrated solutions
4. Choose organic and other naturally derived pesticides or herbicides

The Problem: Impacts of Chemically Intensive Products

- **Human Health & Safety.** Many cleaners contain toxic ingredients that after a continuous exposure pose a health hazard to the janitorial workers and cleaning staff. These ingredients can include carcinogenic chemicals causing cancer, endocrine-disrupting chemicals interfering with hormone processes, toxins that can cause organ damage or trigger serious allergic reactions.
- **Water Quality.** Cleaning detergents and fertilizers that end up in sewer and stormwater systems can contaminate local freshwater supplies. This can cause an overload of nutrients resulting in dangerous algae blooms, ecosystem disruption, and other detrimental effects to marine plants and animals.
- **Air Quality.** Chemically intensive products can contain Volatile Organic Compounds (VOCs) that are off-gassed into the air and increase indoor air chemical exposure, impacting human respiratory health.
- **Energy Use & Emissions.** In many cleaning products, petroleum based solvents, and bleach and chlorine-based ingredients are used; both mostly still produced by methods based on a high consumption of energy. Additionally, the production of fertilizers is very energy-intensive.

Criteria for Sustainable Cleaning & Sanitizing Products

Sustainable cleaning supplies often come in a more concentrated form that can be diluted and have a minimal presence of potentially harmful chemicals, such as corrosive or strongly irritating substances. They also:

- Have fewer or reduced hazard warnings (e.g., no GHS corrosive warnings, no GHS acute toxicity warnings in the Safety Data Sheet).
- Contain biocompatible ingredients that break down into pieces, such as surfactants derived from vegetable-based fatty acids (e.g. sugar-based surfactants)
- Have pH levels close to 7.0, which are less irritating to human skin than those with substantially higher or lower pH levels
- Have minimal and recyclable packaging (avoid ready-to-use packaging, where applicators cannot be reused).

The following are a couple key attributes for specific product categories:

Product Category	Recommended Environmental Product Attributes to Look For
Hand Soap & General Hygiene	Find soaps and wipes that have a third-party certification such as Green Seal or UL ECOLOGO, and that contain no antimicrobial agents. Additionally, look for products which contain a high percentage of biobased ingredients.
General Purpose Cleaners	Try to find undiluted products that are non-toxic, nor corrosive (with a pH between 3 and 11). Check to make sure the cleaners do not contain any ingredients or components that are carcinogens, mutagens or reproductive toxins.
Cleaning and Degreasing	Look for the active ingredients in biologically-based cleaning and degreasing compounds, which contain enzymes and/or microbial cultures that promote microbial digestion of hydrocarbons, organic contaminants and other undesirable substances.
Hard Surface Cleaners	Look for hard surface cleaners that (before dilution if applicable) have a pH between 3 and 11. A flash point of > 61°C and a maximum temperature usage that does not exceed 17°C below flash point are also attributes to look for.
Carpet and Upholstery Care	Look for cleaners that contain less than 0.1% by weight VOCs to reduction in the amount and types of volatile compounds found in cleaners as well as minimizing the amount of residue left on the carpet after cleaning.

Eco-labels & Certifications

Green cleaning supplies often have an eco-label to signify that they meet environmentally responsible criteria. For a complete listing of relevant eco-labels, refer to the Ecolabel Index at: http://www.ecolabelindex.com.

Below are a few examples of eco-labels that you can keep your eyes open for:

The Logo	Description
 	**ECOLOGO Certification Program** UL ECOLOGO® Certified products and services and are verified for reduced environmental impact. ECOLOGO Certifications are voluntary, multi-attribute, life cycle-based environmental certifications that indicate a product has undergone rigorous scientific testing and exhaustive auditing to prove its compliance with stringent, third-party environmental standards. ECOLOGO, was previously the Canadian EcoLogo Program, also referred to as "Environmental Choice," based on the International Standards Organization ISO 14024 standard for ecolabelling and was managed by TerraChoice.

	Green Seal Green Seal is an independent, non-profit organization that strives to achieve a healthier and cleaner environment by identifying and promoting products and services that cause less toxic pollution and waste, conserve resources and habitats, and minimize global warming and ozone depletion.
	GREENGUARD Indoor Air Quality Certified Products that have achieved GREENGUARD Certification are scientifically proven to meet some of the world's most rigorous third-party chemical emissions standards, helping to reduce indoor air pollution and the risk of chemical exposure to VOC's. There are 2 tiers of certification: GREENGUARD Certification and GREENGUARD Gold Certification.

Criteria for Reducing use of Landscaping Chemicals

Whenever possible, minimize the use of chemical treatments for landscaping and grounds through landscape design and Integrated Pest Management. Here are some key practices and product choices to reduce the use of toxic chemicals in landscaping:

- **Landscape with native Species.** Native plants can reduce or eliminate the need for fertilizer because native plants are well adapted to the local conditions. They also do not need synthetic pesticides or substantial watering.
- **Use Certified Organic Compost.** Using certified compost instead of traditional chemical fertilizer reduces or eliminates trace metals such as cadmium, eliminates the need for largescale land disturbance through mining for chemical compounds; and eliminates the release of sulfur oxides in the fertilizer production process.
- **Avoid Chemical / Synthetic-based Pesticides and Herbicides.** Chemically derived pesticides and herbicides are extremely detrimental to the environment and human health. Instead, opt for organic and biodegradable options.
- **Use Fertilizers free of Cadmium.** Cadmium is a very toxic substance and should be avoided in fertilizers.

The Business Case for Sustainable Landscaping & Grounds Maintenance

There are a variety of reasons to address sustainability for landscaping and grounds maintenance. Reducing chemical use on site is a safety and cost savings measure:

- Finding less chemically intensive ways to maintain the grounds will likely mean less money spend on accidents and injuries.
- Additionally, there are hazards and inventory costs to storing chemicals used for grounds maintenance.
- Finally, finding ways to maintain the grounds in a less chemically intensive way means less money spent on disposal and waste management.