

Clean ... and green

Two sustainable cleaning solutions

by Paul Goldin

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ORGANIZATIONS ARE UNDER significant pressure to take active measures in order to safeguard the health and safety of their employees, clients and the environment. Biological and chemical technologies each provide a sustainable solution for effective green cleaning and maintenance.

A sustainable cleaning product is one that performs and has a reduced negative effect on environmental and human health when compared with competing cleaning products serving the same purpose.

According to Avmor's commitment to sustainability, the product should specifically meet the needs of:

Performance – Saves time while cleaning effectively.

People – Safeguards the health and safety of users and customers.

Planet – Raw materials should be biodegradable and meet the highest environmental standards for safe storage, transportation and disposal.

Price – Priced competitively when compared to conventional cleaning products in the same categories.

Biological cleaning

A biological cleaning solution uses biological decomposition to clean and deodorize. These products harness nature's own processes to recycle waste into simple and essential substances. When a biological product is applied to a surface, the microbes eat at the grease turning it into water and carbon dioxide. Biological cleaning products harness natural processes in order to meet today's demands for cleaning, odour control, and waste elimination without the use of potentially harmful chemicals.

There are four main advantages to using biological cleaners and odour control products:

1. They are better for the environment and safer for the users and occupants when compared to traditional chemical cleaners and odour control products.
2. They use highly specialized enzyme producing microbes to clean and control odours by eliminating the soils that traditional chemical products alone cannot treat.
3. They provide residual cleaning up to 80 hours after application and help to reduce overall labour costs by continuing to work long after application.
4. They help to displace unknown, potentially disease causing bacteria with known, healthy microbes and in this way contribute to our better health.

Biological based products should not be confused with solely enzyme based products since the latter do not provide the same cleaning results. Enzyme based products break down the organic matter into smaller pieces and displace it without completely eliminating it. In contrast, biological-based products continue eating at organic matter until there is nothing left. As a result, biological based products play a key role in neutralizing malodours, while enzyme based products simply displace the organic matter without eliminating the odours.

Because of their use of microbes, biological cleaners work best in the following conditions:

- the ideal storage temperature ranges from 5 to 35 degrees Celsius;
- moderate moisture (water activates the microbes and helps transport them); and
- a pH between 5 and 10.

Biological based products work in 5 steps:

Step 1: The product is applied.



Step 2: The microbials in the product sense the organic matter and express enzymes appropriate to the substance to be cleaned.

Step 3: The enzymes cleave the organic matter into smaller pieces.

Step 4: The small pieces are returned to the microbial for digestion.

Step 5: The digestion process results in water and carbon dioxide.

This cycle repeats itself until all the organic matter is digested.

Chemical cleaning

Chemical based products offer another environmentally responsible method for effective cleaning. These products use the chemical properties of hydrogen peroxide to break up organic matter and then prevent grease from sticking onto the surface.

Hydrogen peroxide turns into water/oxygen; it is one of the most environmentally desirable chemicals available, in addition to being versatile, safe and dependable. Hydrogen peroxide fights germs and bacteria – without staining.

Step 1: Product is applied – the surface active agents (surfactants) and hydrogen peroxide are ready for action.

Step 2: Hydrogen peroxide breaks up the organic matter, reduces adhesion at the surface and turns into water and carbon dioxide.

Step 3: The surfactant encapsulates the organic matter and prevents it from going back onto the surface.

Step 4: The surface is wiped clean.

Once you become better informed about the different methods of cleaning and how biological and chemical differ from one another, it is also important to realize that the different methods can also compliment one another.

Hydrogen peroxide¹ is particularly attractive in that it:

- creates no toxic or hazardous byproducts – it breaks down into water and oxygen;
- is safe for hard surfaces and textile finishes;
- has excellent stain removal properties;
- improves wastewater quality in sewer systems;
- helps reduce biochemical oxygen demand (BOD) and chemical oxygen demand (COD) – key parameters in measuring water quality;
- can detoxify cyanide, nitrogen compounds, chlorine, bisulfate, phenol and a host of other toxic-based waste; and

- eliminates odours.

Hydrogen peroxide works very effectively. However, you have to be careful and experiment with the type of material or purpose for which you want to use it, as well as the conditions in which you are using the product. Your cleaning solution provider can help you learn about products containing hydrogen peroxide.

Although biological and chemical technologies differ from one another, they can safely compliment each other. An ideal sustainable cleaning program will take advantage of the strengths of each technology in order to help obtain an effective and more complete clean. ~~~

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¹ Source: <http://www.cleanfax.com/article.asp?IndexID=6635521>, *Cleaner's Chempanion*, "The versatility of hydrogen peroxide," August 2005, by Aziz Ullah, Ph.D., MBA