



## **MAINTENANCE**

### **Alternatives to Green Cleaners**

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In 2005, a study was conducted at a hospital facility in Massachusetts to investigate the ecological, health, and safety (EHS) benefits of eight different bio-based floor care strippers compared to a popular, non- Green stripper made by a major manufacturer. To determine the EHS benefits of the bio-based cleaners, the researchers referenced the material safety data sheets (MSDS) and had the products analyzed by an independent laboratory to determine if and how many volatile organic compounds the products contained or released when used, their pH values, their potential for harming worker and building occupant health and the environment, flammability, and other factors.



*Some experts believe as many as 80% of all future cleaning products will*

*be Green certified cleaners, including bio- or oxygen based cleaners to help reduce cleaning's impact on human health and the environment—which is good for everyone.*

Researchers developed a scoring system including values they believed would indicate a product had a reduced impact on the environment. They found that all eight of the biobased products in the study were within the “reduced impact” parameters, especially when compared to the conventional floor care stripper. The bio-based products were also tested to determine their “solvent value,” which provides an indication of how well they would perform.

As the results were tabulated, there were some surprises:

- All eight of the bio-based strippers had higher EHS scores than the conventional stripper. The higher the score, the less impact on the environment.
- One bio-based product had an EHS score of 49 out of a possible 50.
- The well-known conventional stripper had an EHS score of 26.
- The average score of all the bio-based strippers was 37, 11 points higher (safer for the environment) than the conventional stripper.
- Finally, the researchers concluded that all of the bio-based products performed as well as or better than the conventional stripper.

The only area where the conventional stripper surpassed the bio-based cleaners was in price. The costs to use the bio-based strippers (full strength as well as mixed with three parts water to one part chemical) varied, but at least one was as much as five times the cost of the conventional product.

However, the researchers reported that because of the reduced environmental impact of the bio-based cleaners, there would likely be no disposal or recycling fees, which would probably be applicable to the conventional stripper. Evaluating all of the cost variables, the researchers concluded that the use of certain biobased strippers “could be costeffective in the long run.” In addition, it is possible the prices of some of the products

have come down since the test was conducted, reflecting the fact that the costs of many environmentally preferable chemicals have been lowered in recent years.

### **First Stop: Definition of Terms**

Before exploring the benefits of safer alternatives to conventional cleaning chemicals such as bio- renewable, bio-enzymatic, oxygen-based, and similar products, we must clarify some issues and define some terms.

These products are not made from petroleum products and do not contain traditional butyl- based chemicals, as do many conventional cleaning products, but instead are derived from renewable, sustainable, and low- environmental- impact resources.

Bio-renewable based products are composed in whole or in significant part of renewable domestic agricultural materials, and/or forestry materials, according to the United States Department of Agriculture.

### **Cost Issues**

Although some bio-based, oxygen-based, and hydrogen peroxide cleaners can cost a little more, they still can be cost effective in the long run. According to one report, some cleaning professionals using hydrogen peroxide-type cleaning products have significantly cut costs for cleaning chemicals by replacing up to 37 different conventional products with just three or four hydrogen-peroxide based cleaners. Additional savings, according to the report, were realized because hydrogen peroxide cleaners typically are safer to surfaces such as desktops, white boards, and upholstery.

One of the most common ingredients used in bio-renewable based cleaning products is citrus. Citrus based products are now available for carpet spotting; removing grease, grime, and gum; and cleaning and polishing stainless steel, porcelain, and other surfaces. Depending on how it is diluted, many citrus concentrate cleaners now available are actually an all purpose- type cleaner that can also be used as a glass, light duty cleaner, general purpose cleaner, degreaser, as an odor eliminator, tile and grout cleaner, carpet extraction cleaner, and spotter, and for mopping floors.

When discussing oxygen-based cleaners, which are also considered safer alternatives to conventional cleaners, we are usually referencing hydrogen

peroxide-based cleaners. Surfactants or detergents, and occasionally citrus, are added to the hydrogen peroxide to help it penetrate the surface to be cleaned and reach embedded soils. When the cleaner comes into contact with the soils, the hydrogen peroxide releases oxygen to boost the cleaning power of the surfactants and other ingredients.

In addition to bio-renewable and oxygen-based cleaning chemicals, there are others:

- Enzyme and bacteria based cleaners are formulated with strains of live bacteria and enzymes. They can be used to clean surfaces and with repeated use, remove the bacteria that cause malodors such as urine in carpets and tiles/grout, grease on floors and to remove clogs and keep pipes clean and deodorized.
- Soy-based products are an example of a bio-renewable base and contain methyl soyate, a petrochemical replacement derived from soybean oil, which is blended with a water-rinsing surfactant. Soy products usually cannot “pull” stains out of a surface but are used as degreasers and solvents to remove surface coatings, soap scum, and grease.

### **Benefits and Pitfalls**

There are several benefits to bio and oxygen-based cleaning products. In different dilution ratios, many are able to safely and effectively clean most surfaces and are comparable to the conventional cleaners they replace. This also helps cleaning professionals because it allows them to use just one product for a variety of cleaning tasks instead of many different chemicals and products.

Another key benefit of most of these bio- and oxygen-based cleaners is that they have a reduced impact on the environment, as was found in the Massachusetts hospital study mentioned earlier. Educational facilities have shown some of the greatest demand for these products, especially oxygen-based cleaners, because if used properly, they are safe to use around young children. Further, although the earlier study found them more costly, bio- and oxygen-based products are now considered cost competitive with conventional products.

However, the big pitfall facility managers will encounter with many of these products is that some are marketed as “Green” yet are not certified by any

independent or recognized Green certification organization. This means, they may still contain ingredients that might be harmful to the user, building occupants and the environment.

For a facility that wants to implement a certified-Green cleaning program using only independently tested and certified environmentally preferable cleaning products or one that is seeking LEED (Leadership in Energy and Environmental Design) certification, simply being bio-and oxygen-based products may not be acceptable.

Green Seal® and EcoLogo™, two of the leading certification bodies recognized in North America, both have criteria for Green certifying oxygen-based and biorenewable-based products; and EcoLogo has criteria for bio-enzymatic cleaners. If certified, they will bear the logo/markings of one or both of these organizations.

Additionally, the performance levels of bio- and oxygen-based cleaners can vary—sometimes significantly. Facility managers or cleaning professionals selecting these cleaners may need to test many different products until they find those that meet their cleaning needs. A knowledgeable janitorial distributor can help significantly but will also likely suggest trying out a variety of products before making a final selection.

The best thing about all of these products, whether they are bio- or oxygen-based cleaners, Green certified, is that they are indicators that more and more cleaning chemicals are coming to the market that have a reduced impact on the environment and are healthier for users as well as building occupants. Just five years ago, this was certainly not the case, and five years from now, there will likely be even more of these healthier products. In fact, some experts believe as many as 80 percent of all future cleaning products will be Green certified cleaners, including bio- or oxygen-based cleaners to help reduce cleaning's impact on human health and the environment— which is good for everyone.

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