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Sweet smell disguises powerful biobased cleaner

The process of switching from a conventional cleaning product to an environmentally friendly, biobased one can be wrought with trial and error. But there's no better way to work out the kinks than to have the nearly 37 janitors who clean the Pacific Northwest National Laboratory (PNNL) in Washington state pour it into their mop buckets and test it.

PNNL janitor Greg Clement cleans a door with $H_2Orange_2$.

The massive Department of Energy (DOE) facility has 40 buildings, some dating back to the 1950s, and 1.25 million cleanable square feet of office and laboratory space. When the custodial floor service department went "green" in 2000, the staff wasn't happy with the switch to a different all-purpose cleaner, although it was good for the earth. "Our little joke was you can drink it, but it doesn't clean anything," recalled Janice Haney, PNNL's custodial floor services team leader.

Haney, a high-energy woman who is often at work for 10-hour stretches, promised the staff that she would find a better alternative. Like most computer users, she turned to the Internet to locate something that would disintegrate dirt without harming anything else.

Her task wasn't easy because PNNL has extremely stringent standards, and requires such high marks for safety that even products with the coveted Green Seal®—the gold standard issued by an independent non-profit organization to protect the environment—don't always make the grade. Ordinary vinegar, which eco-conscious consumers often choose to replace potent household chemicals, was ruled out because PNNL's waste management department couldn't give it sewer approval due to its low pH.

Haney hit the janitorial jackpot when she located a product known as $H_2Orange_2$, manufactured by EnvirOx of Danville, Ill., from a proprietary formula of hydrogen peroxide and orange extract. "Our people who tested it liked it right off the bat," she said. "And the employees like it because it smells like oranges. We have 4,000 people working here and we've had no issues with allergic reactions. That has been a big plus." She has yet to receive a single complaint.

$H_2Orange_2$ has been PNNL's main cleaning agent since October 2004, replacing a cadre of about 20 different products. It tackles floors, furniture, walls, bathrooms, kitchens, handrails, windows, mirrors, carpets and upholstery with aplomb. Admittedly, according to Haney, it took a while for a single cleansing agent to dissolve the accumulated grease

and grime, but the custodians now have those under control. However, they still need help from a wax stripper and a floor wax to finish their cleaning rounds. Although the floor products aren't biobased, the wax has Green Seal approval and one of the strippers carries the U.S. Environmental Protection Agency's Environmental Preferable (EPP) designation. However, PNNL custodians have to use a stripper not designated as EPP to remove older waxes containing metals.

The PNNL custodial staff mixes the concentrate with water in a 32-ounce bottle with a fill cap that the custodian squeezes until it contains the appropriate amount of concentrate. EnvirOx supplies this special bottle known as the Bucket Buddy. It takes 1/4-ounce of concentrate to fill the bottle for a cost of 6.5 cents or 1 ounce per gallon for a quarter. The dirtiest jobs, such as scrubbing bathrooms, require 2.5 ounces of $H_2Orange_2$ in the Bucket Buddy.

Like most federal government agencies, PNNL is cost conscious, yet willing to pay somewhat more for a biobased, non-toxic product. "If it was going to cost more, we would still use it," Haney explained. "But I don't think you can go cheaper than 6.5 cents."

The only downside, Haney said, is $H_2Orange_2$ has an expiration date that makes it ineffective as a sanitizer after a year. This posed a challenge to PNNL custodial staff because they didn't have to rotate inventory in the past. But that was resolved easily after Haney communicated the importance.

For more information, contact Janice Haney at janice.haney@pnl.gov or see the EnvirOx Web site at www.h2orange2.com/_Frames.asp.

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