Keep it Clean!

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From advanced equipment to outsourcing options, plant managers are finding ways to clean their facilities faster, safer and more efficiently.

Dust, fumes, grease, soot and oil, hazardous byproducts, metal shavings, wood scraps, plastic scraps, paper, cardboard. What isn't a continual challenge to keeping your plant clean? In the past, the job of keeping a manufacturing facility clean usually fell to an on-staff housekeeping crew. Armed with solvents, industrial vacuums and scrubbers, they'd typically work during off-peak hours, and exit the building before the next shift would arrive to dirty the plant all over again.

It still is this way in some industries. But today, budget cuts have forced many plant managers to abandon this approach and outsource the job or require line workers to pitch in and clean as they do their normal work, or both. The result has been that plant managers are more keenly focused on the cleaning process than they once needed to be. And they're looking for solutions that will allow their workers to clean quickly, safely and, importantly, in a way that complements a company's quality efforts.

"We have a machine-shop environment, which could get nasty," says Neil Condray, quality assurance manager with Baldor Electric Co., a Fort Smith, AR-based manufacturer of electric motors, drives and generators. "But we prevent that from happening by making our operators responsible for cleaning their own areas. This is included in their job description and training because it is an essential part of our manufacturing process and product quality," he says. "Cleanliness is directly related to production efficiency, machine performance and safety issues in the plant, as well as our finished product quality."

Some manufacturers take a less structured approach to cleaning, but with the same goals in mind.

"Since industry began scaling back head count, many do what we call opportunity clean up," says Kevin Sheehan, national sales manager with Minuteman/PowerBoss, an Addison, IL-based manufacturer of industrial floor-cleaning equipment. "This means at the end of a shift, they pull one forklift driver or other qualified employee and put him on the sweeper or scrubber."

Either way, cleaning-equipment manufacturers say they understand that their cleaning products must now be as productive and efficient as their users want their operations to be. PowerBoss, for example, recently introduced sweeper/scrubbers with a "moveable wall" that helps streamline the cleaning process in a number of ways.

"The [retainer] wall moves to one side when you start filling it up with clean water," says Sheehan. "And when you start depleting the clean water and need to put dirty water into the tank, the wall moves back to allow for recovery space. Not only does this allow us to cut back on the size of the machine, it also allows for more

efficiency by cutting the number of refill cycles."
PowerBoss is also introducing an off-aisle scrub and vacuum wand on some sweeper/scrubber models. The remote wand is designed to go underneath racks, into corners and other crevices where ride-on equipment normally can't reach.
"As the worker goes along on his equipment, he can stop and clean hard-to-reach places using a wand that scrubs and vacuums up the dirty water," says Sheehan. "This eliminates cleaning these areas separately, which also makes the process more efficient."
Replacing walk-behind scrubbers with microriders is another trend. Basically a mini-sweeper/scrubber, the microrider is a step up from walk-behinds without the expense of a full-size sweeper/scrubber. As with a full-size unit, the operator is on top of the machine and doesn't need to worry about working around the controls when he swings around, making it ideal for cleaning in tight aisles.
Other high-efficiency introductions include scrubbers that clean and vacuum in the same pass. PowerBoss' Series 9000 Double Scrubber, for example, features both cylindrical and disk scrubbers. Users can scrub the floor twice, pick up the water and leave the floor dry in a single pass. Normally, he says, "You have to leave water down and go back and forth to squeegee it up," says Sheehan. "This is not only time-consuming, but leaving the floor wet can be dangerous."
Similarly, Tennant Co., a Minneapo-lis, MN-based manufacturer of industrial cleaning equipment, is also focusing on cleaning efficiency. "We saw that customers needed improved productivity from their scrubbers," says Mark Fleigle, vice president of research and development. "They wanted them to run longer between dump and fill cycles, and they wanted a safer environment. So we developed a heavy scrubbing technology, which cleans faster and leaves the floor much dryer than other scrubbers."
And with efficiency must also come safety, say managers.
"We are very cautious about any solvents or chemicals we use in cleaning processes," says Baldor's Condray. "We are always searching for products that are better for our employees' health and safety, and better for the environment."
Because of increasingly strict regulations regarding hazardous chemicals in the workplace, it has become expensive to purchase, use, store and dispose of hazardous chemicals.
"Any facility manager in charge of getting the job done and controlling the budget is looking for a product that will clean well, but is environmentally friendly because it is more cost effective," says Delia Downes, Armex product manager with ArmaKleen Co., a Princeton, NJ-based company that makes baking-soda-based cleaning products and processes for industry. Noting that managers will typically not trade cleaning effectiveness for environmental benefits, Downes says research into benign cleaners never stops.
"We're seeing the use of many diverse types of material, including corn cobs, walnut shells, sea shells, baking soda, dry ice, and just about anything else you can imagine," she says. "A whole industry is growing around natural cleaning products."
But, as any engineer knows, sometimes plain water is all that's needed, especially if it's in the form of steam. For cleaning kitchens, bathrooms, HVAC ducts and cooling towers, simple steam has long done the job. But this too, has been improved. A new design from Good-way Technologies, a Stamford, CT-based maker of specialty cleaning equipment, allows users to transport vapor steam where it's needed, without large amounts of water.

"Using portable vapor steam cleaning, you can clean for over and hour on less than one gallon of water," says Tim Kane, executive vice president with Goodway. He calls this technology a substitute for cleaning traditionally difficult and unsanitary areas with a mop and bucket, scrub brushes, harsh chemicals and gloved hands. "The advantages of cleaning with vapor steam are significant," he says. "First you are killing germs and biological agents with 300-degree vapor steam and doing so with minimal run off. Because chemicals aren't necessary, you aren't creating wastewater that will require treatment. And it's safer for the employees doing the cleaning because they can clean unsanitary areas from a comfortable distance without harsh cleaners." He adds that vapor steam technology cleans floors and any surfaces made of metal, ceramics or fabric.

Protecting clean-up crews from hazardous materials is now often a primary consideration when buying equipment. In response, Goodway recently introduced a cooling-tower vacuum that improves what was once a grimy and potentially unhealthy job.

"A cooling tower is essentially a swimming pool used for heat exchange of the water that passes through it," says Kane. "And it's ripe for bacteria growth. This can lead to many diseases including legionnaire's disease. Tradi-tionally, workers had to drain the water and shovel out the debris," he says. "This would expose them to the bacteria. But we've developed a cooling-tower vacuum that allows the operator to clean in less time from a safe distance using a wand, with the water still in the tower."

Like Baldor's Condray, plant managers are increasingly aware that keeping a plant's environment free of contaminants not only improves working conditions, it improves product quality.

"In any industry where a spec of dust could create quality issues, cleanliness and dust-reduction is not only a health and safety issue, but a quality issue that impacts the bottom line," says Russ Seery, business development manager with Nilfisk-Advance, a Malvern, PA-based manufacturer of industrial vacuums. "People haven't always thought of cleaning as helping the bottom line, but when it comes to increasing safety and quality it can, especially in food, pharmaceuticals and electronics."

For this reason, Seery says many of his customers have installed source-capture or spot-suction technologies for dust and fumes. Because collection systems doing source capture on a production line often run 24/7, they must be designed for minimal maintenance. This includes a filtration system that can handle large amounts of dust over a long term.

To meet these needs, Nilfisk-Advance offers oversized filters and filters that can be agitated so they are cleanable without opening the unit. Back-pulsing systems also continuously blast dust from filters to maintain peak airflow with minimal operator intervention.

High-tech solutions like this one can cost more, but are worthwhile, say plant managers. A recent Tennant Co. survey of its customers, for example, shows that 95% are willing to pay more for a machine that reduces labor costs, improves efficiency and is reliable. Nilfisk's Seery agrees that fewer cleaning-equipment customers make price their top consideration when buying.

"People are being forced to take a hard look at what they're buying," he says. "And they are beginning to consider long-term equipment value. They want to see ROI information about how many years the product will be in service and what long-term maintenance costs are."

At the same time, many plant managers avoid the issue of owning equipment by contracting out for their cleaning needs. "We estimate that 45% of the marketplace contracts out at least part of their cleaning routine," says Steve Coopersmith, vice president of global marketing with Tennant Co. Those who outsource can save money on cleaning, though they must find a service that matches their needs.

"We looked at the bottom-line cost of our crews' wages, benefits, sick days and holidays," says Seedet Ahmed, facilities operations manager with Chicago, IL-based Republic Windows and Doors. "We also checked the cost of janitorial supplies and equipment, and repairs and maintenance, and when we compared that with the outsourced cost, we found that using an outside service made sense." After years of using an in-house crew to clean the company's 375,000-sq.-ft. facility, Republic now employs the same independent service that cleans the company's offices because it was familiar with company procedures and expectations. After the switch, says Ahmed, his cleaning cost dropped from $1.17 per sq. ft. to 82 cents. He cautions, though, that the savings and results he's had can't be taken for granted.

"It's important to check references," he says, "and that those references are no more than six months old. Beyond that, people won't remember if the cleaning service was up to par."

He also suggests looking for a company that is willing to partner with you. "You need someone who understands your needs and goals and is willing to work with you to accomplish those goals," he says. "At the same time, you have to be honest with them about your expectations, even if it means they'll charge more. You need a company that can work with your schedule, not when it's most convenient for their crew."

He might also suggest that plant managers check the equipment contract services operate. It should include at least some of the many new designs on the market so they can do the job as quickly and efficiently as possible.

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