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No Grit and No Noxious Fumes in This Foundry

By [KEN BELSON](#)

FOUNDRIES have earned a gritty image — of super-hot furnaces, molten lead and other metals, and noxious fumes and dust.

But these days, some foundries are winning green labels because they use cleaner materials and new machines and processes that have sharply reduced toxic waste.

SA Baxter, a small manufacturer of high-end doorknobs, hinges and other architectural hardware, is one example. At [Baxter's](#) factory in Chester, N.Y., about 60 miles north of New York City, no lead is used, no wastewater is produced, almost no emissions are released into the atmosphere, and many of the materials used are recycled.

Scott A. Baxter, who previously started and sold telecommunications and Internet companies, opened the foundry three years ago because he could not find the detailed architectural hardware he wanted for his new home in Bergen County, N.J. Producing eco-friendly fixtures was not his primary goal.

But as he outfitted his 10,000-square-foot factory, he discovered, like a growing number of manufacturers, that it was only marginally more expensive to use lead-free materials and that pricier eco-friendly machinery quickly paid for itself.

"If you can do it green, you should," said Mr. Baxter, standing on the near-spotless factory floor, where 24 engineers and artisans work. "The technology is changing, and that enables you to be green."

Baxter is not the only foundry using cleaner techniques. Makers of products like auto parts, jet engines and medical devices use some of the same technology. But the companies often do not sell directly to consumers and are not necessarily marketed as green.

"A lot of the things Baxter's doing are already employed by many of our foundries," said Michael Perry, executive director of the Investment Casting Institute, an industry group. "We have several members that make orthopedic implants and you can practically eat off the floor" of their factories.

Back when Mr. Baxter first melted lead-based brass he saw smoke billowing. Concerned about his health and that of his workers, he found the Ingot Metal Company in Toronto, which produces Eco Brass. Unlike ordinary, cheaper brass that is up to about 8 percent lead, Eco Brass is 76 percent copper, 3 percent silicon, 0.12 percent phosphorous and the remainder zinc.

Eco Brass last week cost about \$2.35 a pound, 20 cents more than brass made with lead, according to Ivan

Betcherman, a salesman at Ingot Metal. But it is about 40 cents cheaper than the other lead-free copper base alloys that contain bismuth, a lead substitute, he said.

The gap in price between Eco Brass and leaded brass has also narrowed in the past half year because much of the lead used in brass is recovered from items like car radiators. With auto production down, there is less lead to recover, and ingot makers have had to find more expensive alternatives.

Using Eco Brass not only eliminates lead fumes but reduces hauling costs because sand used in foundries costs less to dispose of when it does not contain lead, Mr. Betcherman said. The processing also uses less energy. The melting point for Eco Brass is about 300 degrees Fahrenheit lower than that of other lead-free alloys, which means furnaces do not have to be as hot.

“If you’re pouring leaded alloys, you have huge capital expenditures to prevent lead from getting into the atmosphere,” Mr. Betcherman said. “But a smaller foundry, rather than spending millions on lead prevention, can use lead-free alloys and concentrate on business.”

To further prevent emissions, Baxter injects nitrogen into its furnace when melting wax molds. This starves the air of oxygen and prevents smoke from forming. The company also installed an after-burner in the furnace, which works like a catalytic converter in a car to cleanse fumes that seep through.

In all, Mr. Baxter estimated that if his factory ran 24 hours a day every day for a year, it would produce less than half the emissions that a Toyota Camry does in a year.

The Baxter factory produces no wastewater because all the liquids used in the plating process are reused. And it opts for acid-based baths that are safe enough that Mr. Baxter casually dunked his hand in them to prove the point.

The company has a clean record at the New York State Department of Environmental Conservation, which has not found any violations at the foundry.

Foundries, of course, are joining a host of manufacturers, from the likes of [3M](#) and [DuPont](#) as well as clothing makers like Patagonia and food companies like Stonyfield Farms in using green technology. “Reducing waste and saving money can work for anyone,” said Glenn Croston, author of the book “75 Green Businesses.” “And for a lot of businesses, it is the difference between being competitive or not.”

Being green is about more than the competition. Environmental rules are becoming more strict, so investing in cleaner technology now could prevent retooling later.

“These upfront expenses will and have been a benefit to us overall,” Mr. Baxter said. “We have gotten our payback in our three very short years of existence and then some.”

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