casestudy

BY REGINALD TUCKER

One Step, Zero Discharge

Bri-Mar Manufacturing goes 'greener' with CPR's phosphate treatment system.

Lance Harrington, maintenance manager at Chambersburg, Pa.-based Bri-Mar Manufacturing, was faced with a daunting challenge: continue to efficiently and effectively clean and pretreat the high volume of large hydraulic dump trailers produced at the company's plant, while striving for a much more environmentally friendly parts washing process. The solution came in the form of the CPR System, a modular phosphate treatment system that provides the metal cleaning power of a 5-stage washer in one step.

While the ability of the CPR System to handle large parts was a big draw for Bri-Mar Manufacturing, the fact that the unit operates on a low chemical consumption platform was the clincher. With growing concern over proper disposal of used phosphate pretreatment solution from their metal surface paint preparation line, Bri-Mar Manufacturing was in need of a more cost-effective and environmentally friendly method of disposing of the wastewater. In that respect, the CPR System delivered as advertised.

"The main thing that got us interested in the CPR System was the recycling capabilities it gave us, alongside the cleaning capabilities," Harrington explained. "Cleaning is number one, given the fact that powder coating represents 85% of the jobs we do. That means we have to have our metals as clean as we can get them."

The recycling capability of the CPR System (see sidebar) was second to that, according to Harrington, who spoke with *Metal Finishing* following the completion of the installation earlier this year. Prior to the adoption of the newly installed phosphate treatment system, wastewater from Bri-Mar Manufacturing's pretreatment operations would be properly discarded, with disposal records filed accordingly with the local water authority. But given the increasing effluents, combined with constant changes within the borough's guidelines, the "old way" became too problematic.

"The borough's levels always changed, and as a result we had to change the chemicals we used — probably three different times — to meet their requirements, buy permits, etc.," Harrington explained. "The

Figure 1. Shown is a photo of a dump bed before it is cleaned. Observe the dirt and metal contaminants all over, especially in the weld areas (inset).

Figure 2. Image of the dump bed after the pressure wash. Notice how the contaminants are gone and the metal is taking on a bluish color. This is from the warm phosphate.

CPR phosphate pretreatment system absolved us from all of that completely, because obviously now we're not putting out anything to the water authority — everything is kept in house."

Naturally, all this has a positive impact on the bottom line. According to Kevin Kelley, president and CEO of Bri-Mar Manufacturing, the CPR System frees up tons of manhours by not having to deal with numerous inspections. On top of that, by switching to PhosBite 101® — the phosphate chemical for the CPR System — Bri-Mar Manufacturing is able to perform cleaning and degreasing operations in one step. Not only does this improve its cleaning process and the finish quality of its trailers, but Bri-Mar Manufacturing also reduced its chemical and water consumption by 70% — primarily through recycling.

"By itself, the cleaning and pretreatment application process is pretty straightforward," Kelley explained. "The trick is what to do with the used phosphate solution after it hits the wash bay drain. The closed-loop recycling process frees us from the limitations and costs imposed by our waste stream permit."

With most new chemistries and processes there's usually a big learning curve involved, especially regarding alterations that have to be made to various finishing lines. While the same held true for Bri-Mar Manufacturing when it adopted the CPR System, it wasn't a deterrent.

"Of course we had to learn the unit, chemically speaking," Harrington explained. But given the fact that Bri-Mar Manufacturing already used a phosphate-based chemical, the learning curve was not as steep. "With CPR System's chemical (PhosBite 101®), our cleaning technique had to change more than anything. Before we used a one-part chemistry, but we also employed a process that would rinse the system. With the CPR System we don't have to do that."

ULTRA-EFFICIENT RECYCLING

The CPR System, introduced in 1989, has been utilized by various manufacturing operations across North America.

The CPR System provides metal fabricators with a one-step metal pretreatment process with recycling to: reduce their chemical and water consumption; improve paint adhesion; and comply with ever-increasing EPA regulatory demands.

By using the CPR System, operators have the ability to:

- Reduce water usage by 95%, thanks to the closed-loop reclamation and recycling system
- Reduce phosphate and zirconium consumption by 80% over typical wash and dump methods
- Eliminate wastewater discharge, hauling or evaporation
- Eliminate hand wiping, rag and solvent expense while reducing workplace hazards
- Eliminate wastewater monitoring and reporting while reducing risk of municipal fines and penalties
- Reduce labor cost associated with cleaning products prior to paint

While large parts manufacturers such as Bri-Mar Manufacturing have only recently installed the CPR System (see Case Study), the equipment has been in operation for more than 20 years. Here's what other purchasers said about the system:

"We exceeded our goals by lowering air emissions, reducing labor and other costs resulting from the cleaning process while improving our products' finish."
—Chris Hamlin, president, Interstate Manufacturing, Inc.

"We switched from just pressure washing using a degreaser to a CPR phosphate cleaning system with recycling. We greatly reduced our chemical consumption and eliminated discharging any wash waters."
—Greg Snyder, president, Car Mate Trailers

ABOUT CPR SYSTEMS

CPR Systems, located in South Bend, Ind., is a division of T. George Podell & Co., Inc. The company designs and installs all CPR equipment per the client's specs and can modify the equipment to meet unique floor plans and work flows. For more information, including additional testimonials, please visit www.cprsystemsonline.com.

ABOUT BRI-MAR MANUFACTURING

Bri-Mar Manufacturing, founded in 1995 in Chambersburg, Pa., has grown to be one of the largest manufacturers of hydraulic dump trailers in the country. In addition to the dump trailer line, Bri-Mar also manufactures a full array of equipment trailers, utility trailers, and car trailers. For more information on Bri-Mar Manufacturing, please visit www.bri-mar.com.