BIOBASED PAINT STRIPPER GETS THE JOB DONE

Protecting Workers and the Environment...

Biobased Paint Stripper Helps Submarine Repair Facility

When a U.S. Navy submarine comes to Portsmouth Naval Shipyard (PNS) to be renovated and updated, it gets a total overhaul inside and out right down to the smallest detail. For example, doors are removed and stripped of whatever kind of paneling (Formica, wood, etc.) they might have. But that's just step one. Eventually, bare metal will be exposed with the removal of the panel adhesive and metal's base paint.

For the last two-plus years, most paint crews at PNS have relied on a biobased product to remove both the paint and adhesive on these doors and hundreds of other painted areas on the sub. "Doors and the like can be taken off the ship and brought into our shops, but many other surfaces cannot, so we need a stripper that we can work safely within confined areas that won't contaminate the sub," says Foreman of Paint Shop 71 Bob Moors. "We have to use chemical strippers rather than mechanical methods, such as sanding, because of the dust they produce. The internal environment of a sub—especially instrumentation—is extremely sensitive to dust particles that result from sanding and scraping so a chemical stripper is extremely important," Moors says.

"This is good stuff. It saves a lot grief," says Bruce Trent about Soy Strip, a biobased paint remover, he uses on submarine renovations at Portsmouth Naval Yard. Trent is work leader in Paint Shop 71 and is shown applying product to a door panel that was removed from a sub and taken into the shop for stripping and re-painting.

"In the past we had no choice but to use a harsher methylene chloride product. It worked well but was classified as a Volatile Hazardous Air Pollutant which means it's bad for the environment. It also required extensive controls (for example: ventilation and respirators) to prevent worker exposure," he explains.

So how does the Soy Strip work? "Good," declares Bruce Trent, work leader, in Moors' crew. "In certain situations we might have to allow the soy stripper a little more time to work or even give it a second coating, but it does loosen and/or remove both paint and adhesive. There are always plenty of other jobs to do, so if the product takes a little longer we still stay busy and productive. **The major advantage is that we can do it almost any place on the ship because the health risks are reduced and it's environmentally friendly. This is good stuff. It saves a lot of grief."***

The Story Behind the Story

Bob Moors and Bruce Trent and their crew are using this product every day. The story of how a soy-based paint stripper got to be used at PNS goes back to the mid-1990s. Tim Dunn, a chemical engineer with the Environmental Division at PNS and a 23-year veteran of civilian environmental work for the Navy, formed a Pollution Prevention Team for PNS.

ABOUT PORTSMOUTH NAVAL SHIPYARD

On Seavey Island in the mouth of the Piscataqua River between the state of New Hampshire and Maine, PNS has served as a U.S. Naval base for more than 200 years. The 200-acre facility is the most experienced naval shipyard in submarine design, construction, modernization and maintenance and plays a key role in the very-deep ocean submersible and special operations arena. Today PNS's primary mission is the overhaul, repair, modernization and refueling of Los Angeles Class nuclear-powered submarines. That process usually takes 2-3 years. More than 4,600 people, most of whom are civilians, work at PNS. Many of its picturesque buildings date back to its earliest history and make a dramatic backdrop for the modern day cranes that do the yard's heavy lifting and the sleek submarines it serves.

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USB UNITED SOYBEAN BOARD

Members of Portsmouth Naval Shipyard's current pollution prevention committee are: (Front row, left to right) Barbara Mills, Tim Dunn and Rob Becker (Top row L-to-R) Ernie Bstandig, Art Markham and Deb Forbes.

In the heart of Portsmouth Naval Shipyard, an area designated as "Workers' Park", honors the thousands of employees who have worked at the facility throughout its 205 years.

Tim Dunn, a chemical engineer in the Environmental Division at Portsmouth Naval Shipyard is looking at many new uses for biobased products after their success with a soy-based stripper on submarines. Dunn, a self-proclaimed "Green Guru" formed the PNY Pollution Prevention Team in the mid-1990s, which led to the adoption of Soy Strip.

A key part of Dunn's and the team's strategy was to first identify major pollutants at the shipyard. "Methylene chloride was on that list and we soon found that a major source of that chemical was coming from paint strippers," he explains. "I appointed Lisa Melvin, then a civil engineer in our Engineering Department and a member of the team, to find an alternative paint stripper for the epoxy paint on our diesel engines."

Melvin, now in the PNS Public Works Department, says she looked at all kinds of products with the criteria that they need to be not only environmentally safe, but had to have a flash point high enough to eliminate explosions and not emit toxic fumes into the air. "We never found a paint remover that would work on the epoxy paint on the diesels, but we discovered two important facts. First, there was no need to remove by any method the paint from the diesel engines. If it needed a new coat, you could paint right over the existing one. Secondly, the biobased stripper made from soybeans did work with coatings other than epoxy."

But back then finding the biobased product took some effort, too. "We were exhibiting at a trade show in Florida," recalls Dan Brown of Franmar Chemical, Inc., "When a Government Services Administration (GSA) person, who knew about our product and knew that Tim Dunn and his colleagues at PNS were looking for a biobased paint stripper, put us together. Through GSA we provided them enough of our Marine Soy Strip product for the initial tests."

Testing began in 2001, according to Dunn, and, "By mid-2002, we got the news that based on our trials, the soy-based stripper was an approved product."

Based on his experience with the paint stripper, Dunn is eager to try other biobased products and was pleased to see the scope of available products in the United Soybean Board's (USB) *Soy Products Guide* that is available online at www.unitedsoybean.org/newuses. "A number of products from several different categories, such as hydraulic fluids, metalworking fluids—even industrial cleaning products—are potentially useful to us here at PNS.

*The use of soy-based paint stripper by the Portsmouth Naval Shipyard does not constitute the Shipyard's or the Navy's endorsement of the paint stripper mentioned in this article.

FACT FILE

America's farms are just beginning to tap their potential as a source for natural, renewable biobased products that offer benefits to worker health, the environment, America's economy and energy security. To learn more about the many biobased products made from soybeans such as those used at Portsmouth Naval Yard go to the Soy Products Guide catalog at www.unitedsoybean.org.

Because of the potential for biobased products to create new markets for soybeans, U.S. soybean farmers have invested more than $50 million to research, test and promote biobased products. Much of this work was done through the United Soybean Board (USB), which is composed of 64 U.S. soybean farmers appointed by the U.S. Secretary of Agriculture to invest soybean checkoff funds.

For more information on the use of biobased products at Portsmouth Naval Yard, contact Tim Dunn at 207-438-3831 or by email at DunnTP@mail.ports.navy.mil

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