



ENVIRONMENTAL UPDATE

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Painters Learn Efficient, Green Techniques

By Eleanore Hajian

Contributing writer

When painter Geno Usmari sets out to apply protective coating to a military vehicle, there's a lot to consider.

The way he'll mix the paint, what he'll mix it with, the type of spray gun he'll use, the thickness of the application, and even the angle at which he'll hold the gun – all affect the result.

One glitch could make the difference between a good job and a job gone bad.

Many professionals like Usmari, the lead painter for the Aberdeen Test Support Services Program at the U.S. Army Aberdeen Test Center, Aberdeen Proving Ground, Md., learn the finer details of their trade the hard way: on the job.

But a program for military painters at the Iowa Waste Reduction Center (IWRC), University of Northern Iowa, recently offered Usmari and his team a better option.

IWRC teaches the latest painting techniques and technologies. Students praise the advent of high-level training that addresses the more complex challenges of the job.

"I learned to paint in the Navy. They said 'here's the equipment – go to it,'" said one course graduate. "When I came into the Air National Guard, I still got only one day of training in paint spray application. I really did not know how well I was doing. Now I have finally gotten the training I needed."

The enthusiastic reception isn't hard to explain. The course, officially known as Spray Technique Analysis and Research for Defense (STAR4D), packs a high-tech wallop, including lasers and virtual reality.



Courtesy Iowa Waste Reduction Center

A painter tries out the laser touch.

Before trainees put bona fide paint on real equipment, they hone their skills in a virtual paint booth. Then, a laser-guided spray gun system helps perfect the techniques in the real world.

For trainees, who take before-and-after tests to measure their spray efficiency, the average improvement is 23 percent. Post-training tests show average material consumption decreases by 15 percent and volatile organic compound emissions drop by 15.49 percent.

STAR4D director Richard Klein attributes his program's success to years of work by IWRC and the Southwest Research Institute, a not-for-profit research and development organization in San Antonio. Southwest Research Institute also provides overall management for the program.

Small details – like which needle, fluid tip and air cap combination works best on a particular type of spray gun for a specific type of paint – make a big difference, Klein said. The application of sound scientific principals to painting military equipment helps identify the best solutions and, more important, why they work, he said.

“Our goal is to make the painter’s job easier, improve the environment, and save money,” Klein said.

A typical three-day course at IWRC covers everything from the chemistry of how and why different types of paint work in different conditions, to proper mixing, application and equipment. The majority of the course is hands on.

Funded by the Defense Logistics Agency, STAR4D began in November 2003, and since then has trained 90 painters from 19 military installations.

“Even the old-timers found a lot of areas they could improve by using these tools,” Usmani said of the virtual reality paint booth and laser-guided spray guns. “It made a big difference between their pre- and post-tests.”

As part of its mission to reduce air emissions from painting operations, the center specializes in the use of water-dispersible coatings. They release far fewer volatile organic compounds and hazardous air pollutants – but handle differently – than their solvent-based counterparts.

For Usmani, whose shop is switching from solvent-based to water-dispersible Chemical Agent Resistant Coating (CARC) to comply with Army and Marine initiatives, IWRC training made a big difference.

“I feel much better about using water-dispersible CARC,” he said. “I used it before without any training and had adhesion problems. Once you work out how to use it though, it’s great.”



Courtesy Iowa Waste Reduction Center

Aberdeen Test Center paint shop supervisor Joseph McDeshen uses the virtual reality booth.



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