

ME working on environment-friendly spray paint

By KIMBERLY MANN, ALUMNEWS Writer

Spray paint is used for everything from automobiles and trucks to graffiti. You already know this.

What you may not realize is that the University of Wyoming's Mechanical Engineering Department is currently involved with a research project to improve an environmentally-friendly paint. This research is in conjunction with Union Carbide and is based upon the UNICARB® spray coating system, which was patented by UW's own graduate, Ken Hoy (BS '50; Doctor of Laws, *Honores Causa* '95).

Actually, Ken Hoy is only one of a long line of UW graduates involved with this project. Dwight Senser (BS '81, MS '82) started the project at Purdue University, where he was assisted by Jeff Colwell (BS '91). Senser and Colwell went on to receive Union Carbide's "Outstanding Research Project of the Year" award for their work on the UNICARB® system.

Senser moved the project from Purdue to UW in 1994. When Senser was tragically killed last year, William Lindberg agreed to carry on Wyoming's research efforts towards the project.

Lindberg, along with the assistance of Paul Dellenback and several UW students, is continuously working on the UNICARB® system. Lindberg says that their specific focus lies with "improvement of spray and sprayability of the paint."

They are looking at the "various kinds of materials that can be sprayed utilizing the UNICARB® process," says Lindberg.

The UNICARB® spray coating is unlike any other system on the market today. It reduces the use of organic compounds, which contribute a great amount of air pollution to our environment, replacing them with carbon dioxide.

This process involves the release of high-pressure liquid-state carbon dioxide during the spray formation. The carbon dioxide substitutes the solvents normally used when the spray is formed and thins out the paint, making it sprayable.

Lindberg claims that the UNICARB® system actually "improves the coating quality and creates a very nice finish on a variety of materials."

This high quality coating is achieved "because the spray's narrow droplet-size distribution is precisely the size range necessary for a high quality finish. Additionally, this droplet size distribution has 'fairly high transfer efficiency', so there is less wasted coating," says Lindberg.

Apparently Ford Motor Company agrees with Lindberg.



Kimberly Mann photo

William Lindberg, Mechanical Engineering Department head, and Paul Dellenback, associate professor, are currently doing research with Union Carbide on an advanced spray coating system, which reduces solvents up to 85 percent.

He says that Ford currently uses the UNICARB® spray coating system for putting the final clearcoat finish on their automotive and farm equipment product lines.

Pennsylvania House Furniture uses the UNICARB® system for its higher quality furniture. Also, Ekco uses it on its non-stick pans.

The main attraction to the UNICARB® system is its non-toxicity.

"With this system the volatile organic compounds (VOCs) are reduced up to 85 percent in applications," according to Lindberg.

Additionally, the UNICARB® system reduces the amount of flammable solvents. That is, "because carbon

dioxide is non-flammable, its use in this system is a great safety advantage," says Lindberg.

Another benefit to the system is that it doesn't create carbon dioxide, but "it uses by-product carbon dioxide from other sources."

As the Environmental Protection Agency (EPA) continues to create more stringent VOC regulations, it seems that environmentally-friendly spray coatings such as the UNICARB® system will become more popular with manufacturers. Meanwhile, the research to improve the sprayability of the UNICARB® system continues at the University of Wyoming under the leadership of Lindberg and Dellenback.