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A Coatings Campus

Products Finishing magazine was recently invited to spend a day inside PPG's Application and Process Development Lab in Flint, Michigan. Anticipating little more than a showcase of PPG's products, we found that the facility serves as an educational tool for finishers and a risk-management resource...

By [Matthew Little](#), Editor

Editor's Note: This story is the inaugural article in PF's "Solutions" section, a new monthly feature dedicated to exposing readers to supplier-driven efforts to provide solutions to the day-to-day obstacles faced by individual finishers and the industry as a whole. For more information on this new feature, read Matthew Little's column, "Reality Check," beginning on page 6 of this issue.

Most people in the product finishing industry recognize [PPG](#) as one of the world's largest suppliers of coatings in a number of different industries, including automotive and general industrial. Recently, Products Finishing magazine was invited to spend a day on the campus of the company's Application & Process Development Lab in Flint, Michigan. What was discovered was far more than a simple product showcase or technology proving ground.

"If They Make Cars, They've Been Here"

Launched in February, 1985, the Flint facility was originally designed as a teaching facility for employees of General Motors. During that period, PPG educated 25 GM employees on both manual aspects of automotive finishing, as well as the operation of automatic equipment. Over the course of time, the facility opened its doors to the rest of the automotive world. "If they make cars, they've been here," said Site Manager Bob Marr.

Today, the bulk of the work performed at the Flint facility remains automotive, though some general industrial work is performed there as well. Aside from the gamut of automakers, employees of companies like Batesville Casket, Snap-On Tools, Harley Davidson and Steelcase have visited the campus.

The Flint center is one of two major application facilities operated by PPG (The other is located in Ingersheim, Germany). The company also maintains a handful of secondary facilities around the world, where similar processes are employed on a smaller scale.

One of a Kind

The Flint facility—designed to simulate any aspect of the coating process—is equipped with temperature and humidity-controlled spray booths that can be used to spray water-based or solvent-based basecoats and clearcoats. The lab also features prep booths, robot modules, conveyors and ovens. In 1989, the company installed a fully-automated full-size powder coating system and began performing the application of powder clearcoat and powder primer.

In 2001, a \$6 million one-of-a-kind electrocoating (e-coat) application center was added to the campus. The new facility spans 15,500 sq ft and houses two 28,000 gallon e-coat tanks with temperature controls and filtration equipment. The tanks are large enough to dip full vehicle bodies up to 8x8x25 ft. The center also features two 30,000-gallon product storage tanks and

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To learn more about electrocoating, as used in automotive and other industries, read [New Electrocoating Equals Success](#).

MORE INFORMATION

...about risk management and plant training, visit [PPG Flint Application & Process Development Lab's PF Online Showroom](#), call 810-767-8030, or select the Product icon on the right.



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a specially designed indirect-fired gas oven that can also simulate direct fired conditions. This oven is also equipped with full black wall radian capability. An automated computer-controlled bridge crane system—used for dipping and removing the vehicle bodies from the tanks—automates the process, providing the ability to reproduce line conditions or simulate desired changes. The state-of-the-art bridge crane system sets entry angles up to 45 degrees and can simulate “porpoise” motion, and an assortment of immersion and emergence conditions.



[Link To Graphic](#)

Overview of Flint Application & Process Development Lab

One of the unique aspects of the electrocoat application center is that, as operations are performed, they are recorded by video cameras and all processing parameters are stored in the computerized control system for future reference. Finishers are then able to view the video in the facility's meeting room and—upon departure—can take back to their plant a videocassette of the process, further enabling them to ensure consistency between their “at-home” operations and the processes as tested on the campus at the Flint facility.

More Than Just a Proving Ground...

Outside of the work performed in a supplier's Research and Development labs, one might wonder why an industry supplier would invest the time and money performing coating operations, with little direct, tangible benefit. However, in a benign variation of Sun Tzu's “know yourself and know your enemy” philosophy, PPG believes that, in performing the coating processes that its customers perform on a regular basis, it can ultimately have a better understanding of the finishing community as a whole.

“In each [industry], we find that in the coatings technologies you are applying to products, often times the process by which the customer is going to apply the coatings has a significant impact on the overall performance, appearance or final product quality,” said Vince Dattilo, manager of PPG's Applications Technology & Process Development Center, Automotive Coatings Business Unit. “In this facility, we try to simulate what finishers are going to do with a particular product, which allows us to truly be able to understand the finisher's process and formulate a coating that matches that process.”

The notion that providing value-added service is good for business is hardly a unique idea. But the facility also plays a critical role in several other aspects of the day-to-day operations of both PPG and finishers.

Technology Validation. Although the bulk of product development takes place at PPG's various R&D labs, the Flint center plays a role in the company's technology validation process. For instance PPG recently coated several vehicles with its Dura-Prime electrocoat paint. The vehicles were then evaluated at various automaker test tracks for chip resistance and early signs of corrosion and UV degradation.

Risk Management. By mimicking the processes performed by various finishers, the Flint facility serves to address potential obstacles before they occur. And because the facility tests coatings with equipment from a variety of equipment manufacturers, the finger-pointing that sometimes occurs between equipment and coating suppliers is eliminated.

Education. The Flint facility is used to educate finishers not only about coatings, but also about finishing processes and equipment in general. By learning how to employ their day-to-day processes more effectively, finishers can increase productivity and reduce in-plant re-work and scrap. PPG also plans to develop a customer focused Learning Center on the Flint campus. Mr. Marr noted that the curriculum could be available to not only operators but designers and engineers as well, where the learning or test experiments are specifically directed and project founded.



A car body emerges from one of the Flint facility's two 28,000 ft² e-coat tanks.

Automotive Coatings: What's Next?

PF Editor Matthew Little spent a few minutes chatting with Dennis Taljan, PPG's Global Director of Decorative Products. The two discussed the current and future trends of automotive coatings from both decorative and functional standpoints. Here's a look at their conversation...

Q: Compared to ten years ago, today's end-users seem to be quite a bit more savvy about the finish on their vehicles. Do you agree with this?

A: I do believe that. I think the [automotive] lease market has had a lot to do with that fact. More and more people are leasing their cars these days. When they bring them back in, they get charged for excessive wear in a number of instances, and one of those areas is in the finish. We're now seeing that the value of a good paint job on a car actually increases with time. If you see a car in a parking lot and it's four years and it's shiny and it's glossy and hasn't faded and all the parts match, you'll say, "That's a pretty good car." The transmission could be shot, and the brakes may not work, but your first impression is that the car is pretty good. If you see a rusted, faded vehicle, your immediate reaction is, "That car is a junker."

Q: What consumer trends are you noticing from a color standpoint?

A: Metallics are huge and will probably continue to be huge for some time. One of the things that we're seeing now is a focus on differentiation between "sporty," "tough" and "sophisticated." So you see Cadillac buyers looking for a liquid metal type of effect. If you go into a jeweler, you'll see gems that are really polished, smooth and shimmery. Some car buyers want that same kind of sophistication that says "I'm paying top-dollar for a car. I'm sophisticated." Likewise, if I'm 40 years old and I'm going through my mid-life crisis, I might not be able to afford a Lamborghini, but I can buy a bright yellow Dodge Ram pick-up truck. So we're seeing a sense of individuality, and colors that match the mood of the buyer. And again, some of that I think is related to the leasing and turnover of vehicles. People can come in and out of a vehicle more quickly than they had historically. Consequently, they may go a little bit further away from just a traditional tried-and-true color.

We're trying to work closely with design houses as we develop new colors so that the colors actually match the personality of the vehicle. We want them to add to the brand image. We'll get requests from the design people to design colors that meet the impressions created by certain words like "tough" or "sophisticated." We'll try to match the color palette to the vehicle and its character.

Q: How about from a functionality, or durability, standpoint?

A: The 90s saw us spending an awful lot of time developing clearcoats that were resistant to environmental fall out, whether that's acid rain or insect carcasses or bird excrement. Clearcoats have come a long way in the past ten years so that they can resist all of those. Now, instead of etching into your car's film, you just run some water from a hose over the top of it to rinse it off so there's no mark left.

Q: So what's next in this area?

A: Now we're working on the scratch-and-mar component. We just commercialized in the past year the CeramiClear product with Daimler Benz in Europe on Mercedes vehicles. This is a coating that greatly enhances the scratch and mar resistance of the finish. If someone comes along with a sharp implement and they scratch down to the metal, there's nothing we can do about that. But now, coatings are getting to the point that they will tolerate branches or people rubbing up against and things like that, so you don't end up with a mar on your finish.

Q: What about the primer layer?

A: We're spending a lot of time down deeper in the film, in the primer layer, working on chip resistance. If you've driven I-75 between Toledo and Detroit, you can find everything from a refrigerator door to a bolt lying on the road, and they all come flying up at your car. We're trying to do some things now that, regardless of the shape that the designer chooses for his vehicle, we can put on a coating system that resists chipping as it gets impacted by the road debris.

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