



Overarching design:
Paint engineer Nicole Hörner and future lab technician Felix Bischoff with the various ingredients they will mix to produce the yellow-green hue for Bischoff's bicycle.

Yellow-green and pearlescent, please

The ideal paint for apprentice Felix Bischoff's new bicycle does not yet exist. How convenient that Wörwag's designers work just a few floors above his department.

By Thorsten Schönfeld; photo by Frederik Laux

Nicole Hörner and Felix Bischoff button up their lab coats, put on goggles, and pull on gloves. "The goggles are crucial. When you work with liquids and powders it's easy to get something in your eye," says Hörner with a smile. Hörner, a paint engineer, and Bischoff, in training as a paint technician, stand in front of several containers of what Hörner terms ingredients, as well as a white bucket that the two will soon be using to mix the paint. "This is what my bicycle should look like!" says Bischoff as he holds aloft an album cover of his favorite band, which has a yellow-green illustration.

The process they are about to embark upon is similar to that used when car designers commission paint from Wörwag. Photos from the world of furniture and design, or perhaps also the cosmetic sector, serve as models. Hörner and her boss Herbert Kost, who directs the Design and Pigment Development department, evaluate the models for feasibility.

One criterion concerns the desired effects: are they supposed to be conspicuous or subtle? Head developer Kost can tell immediately whether a designer's idea can be realized in paint. A chemistry lab technician, he has been in the business for 40 years. "We first have to figure out which pigments come into question," he explains. "It helps to look through the archive—for we might have developed a similar shade in the past." Then it's off to the lab.

Pigments that produce gloss

Bischoff has set his illustration aside. He weighs the first ingredient, a semi-finished product, and pours it into the mixing bucket. The base material consists in large part of a binding agent. Thickeners are added so drops won't form when the paint is applied, as well as water, solvents, and pigment pastes. Hörner takes two cans from a cabinet. One contains

aluminum pigments, the other a pearlescent gloss. The latter looks like flour, but produces a yellowish sheen when rubbed on the back of a hand, for example. "Pigments of this type are also used in cosmetic products like eye shadow," she remarks.

Then it's time to mix. The electric mixer, which looks like a cross between a kitchen appliance and a stationary drill, comes to life with a soft hum. As the pigments are added, the desired shade slowly appears. Despite all the ingredients in use, there is scarcely any odor.

In the right light

The developers also create paints of their own. Once a year they present them to car makers after applying them to pieces of sheet metal. The metal is bent in the middle to show the effect on vehicle contours. To see how the shade changes under different light conditions, the developers use a light cabinet—a separate room with special lamps that can simulate all nuances of light from dawn to dusk.

By the way, not only the color has to be right. The paint itself has to have physical properties that enable it to be used flawlessly at every paint shop. That is why Wörwag mixes it differently for every type of facility depending on information provided by the customer. If a car maker selects a certain paint, this product must first demonstrate that it meets the specifications over the course of complex and often lengthy tests (for more information, see the "Paint Under Stress" article in this issue).

After a good hour of work, the paint for the apprentice's bicycle is ready. All that remains is to test it on a piece of sheet metal. After it dries, Bischoff takes it out of the oven, carries it to the light cabinet, and assesses the color's changing appearance. Then he takes another look at the effect in natural light by the window. "Perfect!" he exclaims. A pearlescent yellow-green. Exactly what he wanted. ■

Presenting your new car paint

As a supplier for the automobile industry, one of the products Wörwag develops is paint for entire car bodies. The company's designers and pigment specialists develop paints not only when commissioned by customers but also based on their own ideas. They present the latter to selected parties once a year. It takes an average of six months from inspiration to presentation of each of these ten to twelve proposals. The paints contain up to three effect pigments as well as three to five color pigments. They can have as many as fifteen ingredients overall. Wörwag mixes volumes of up to 25 kilos at its development lab. Its regular production facilities supply volumes from 100 kilos to 20 tons.