



ConceptColor

More than 100 qualified employees refine aluminum surfaces at the Legden location near Ahaus. The company offers various processes such as anodizing and powder coating on a production area of around 10,000 m².

The special feature: ConceptColor often combines anodising and powder coating for surface refinement, so that the workpieces are suitable for the most aggressive conditions, such as use in maritime climates.

Logistic services complete the portfolio of the active GSB member.

GSB member ConceptColor relies on OptiSense in quality assurance

Real-time coating thickness measurement technology from OptiSense directly in the line at ConceptColor

Coating thickness measurement is a key technology for quality assurance in the coating industry. For this, however, the testing technology has to be more and more interlinked with actual production.

ConceptColor went this way – extremely successfully, as the interview with managing director Dr. Felix Zabka and the deputy production manager Silke Goldmann-Rohde shows.

Dr. Zabka, your company is the place to go when components need to be anodized or powder-coated.

Dr. Zabka: Yes, we refine workpieces made of aluminum by not only applying powder paint, but also creating an extremely corrosion-resistant surface through anodising beforehand. It is precisely this combination of pre-anodization and powder coating that is our unique selling point. By the way, we offer this in lengths of over seven meters!

The interview partners at ConceptColor

Dr. Felix Zabka, Managing Director ConceptColor



Silke Goldmann-Rohde, Deputy Production Manager



So what's special is the durability of the workpieces, the long-term protection against corrosion?

Dr. Zabka: Exactly. Because parts we treat are used, for example, on the coast, in the aggressive maritime and marine climate. We can also produce highly weatherproof or anti-graffiti surfaces. So it's not just about the great variety of colors in powder coating, but also specifically about treatments that make surfaces more resilient.

Where do the customers requiring this optimal corrosion protection come from?

Dr. Zabka: From all over Germany and even from abroad, especially Holland. Our regular customers are located in a circle of around 150 km around our company headquarters here in Legden. If your question is aimed at the industries in which our customers operate, it is primarily facade cladding, construction and automotive industry; here mainly the truck sector.

How many colors do you work with on average per month?

Goldmann-Rohde: Our orders have literally any color. The standard colors are white, silver and gray. But of course there are also customers who specify complete different colors. There are also various surface characteristics such as semi-gloss, glossy or structured.

Dr. Zabka: And since adherence to dead-

lines is one of our most important maxims, we don't start with white on Monday and finish with black on Friday, but manufacture according to incoming orders and delivery routes. An average of 10 to 15 profiles hang on the traverse. You can certainly imagine that color changes take a lot of time, especially for small batches, because cleaning booths is quite time-consuming.

The OptiSense PaintChecker is used immediately after the powder booth. This saves us expensive reworking.

Dr. Felix Zabka

Managing Director ConceptColor

How do you ensure your high quality in the coating process? Let's stay in the powder area, for example ...

Dr. Zabka: Well, first of all, ConceptColor stands for a well-coordinated and highly qualified workforce – powderers and anodizers alike. In addition, we have integrated a large number of inspection stages into the coating process that a workpiece has to pass through. The quality inspection already starts in the

incoming goods department. The incoming material is first checked visually for damage.

Goldmann-Rohde: Sometimes a workpiece is damaged due to a broken package, sometimes we discover corroded areas because the material may have been delivered wet. In the next step, in the clamping area, further material defects such as kinks or dents would be detected – the defective parts are sorted out after consultation with customers or released for production.

Dr. Zabka: In the pretreatment, we first clean the workpieces thoroughly in order to then etch them and apply a conversion coating. In this way, we ensure optimal bonding between surface and paint, because inadequate pretreatment can result in poor adhesion of the paint. When powdering, negatively charged powder particles leave the gun and hit the oppositely charged workpiece in order to achieve a coating that is as uniform as possible in the desired coating thickness.

The coating thickness is checked immediately after the electrostatic surface coating, if the work pieces have not yet been cured and are therefore still extremely sensitive to touch. All of this happens under the control of our powderers and production managers.

“After a short briefing, all employees were immediately able to operate the device in an intuitive manner. The PaintChecker mobile measures all color tones with a single setting.”

Silke Goldmann-Rohde,
Deputy Production Manager



The PaintChecker mobile family

Compact controller and ultra-light sensor

The complete measuring system consists of two units: The controller with the evaluation electronics and the lightweight, compact sensor as the actual measuring device. The tiny dimensions of the smallest sensor of 130 × 25 mm with a weight of just 50 g enable measurements in places that were previously difficult to access.

The right sensor for every task

The mobile OptiSense *laser models* are mainly used for smooth coatings on metallic substrates. Due to their tiny measuring spot, the slim laser sensors are particularly suitable for coating thickness tests on delicate small parts, corners and edges.

Due to the larger measuring spot, LED sensors are ideal for freehand measurements on rough surfaces. The *PaintChecker mobile Gun-R* model is particularly suitable for components made of plastic or rubber.

The *PaintChecker mobile Gun-B* is optimized for non-parts contacting tests of freshly applied powder coatings before baking. It measures the still soft powder coating on substrates such as metal, glass or plastic, independent of color and type. The shrinkage during the baking process is taken into account.

So you check the coating thickness directly in production?

Dr. Zabka: Yes, accompanying the process. The OptiSense PaintChecker is used immediately after the powder booth. The test is carried out without contacting workpieces while the coating is still soft and sensitive. This saves us expensive reworking; if, for example, the coating was unevenly or too thinly and the part would otherwise have to go through the entire coating process again.

Goldmann-Rohde: After curing, the coating thickness is checked and documented again. A final check of the coating result takes place in the packaging department.

Dr. Zabka, you just mentioned OptiSense. Why did you choose this manufacturer?

Dr. Zabka: We watched the market to see which measuring device would be suitable for the demanding tasks at ConceptColor. In addition to the PaintChecker, we tested another device from a competitor.

Why OptiSense?

Goldmann-Rohde: Handling is much better with the OptiSense PaintChecker. In addition, customer service is nearby.

Dr. Zabka: We had both devices here and were able to try the PaintChecker in our line for a week.

For Pulverer Alexander Fleuth, production manager Jan Wessels, quality inspector Lisa Kock and Pulverer Botros Boulos (left to right), coating thickness measurement with the handy, light and precise PaintChecker is easy.



Goldmann-Rohde: In order to support our decision, we finally had various measuring systems compete against each other: For this purpose, test panels were first measured with the Paint-Checker and, after being curing, checked with an eddy current-based measuring device. The result was convincing.

At ConceptColor, several employees use the PaintChecker mobile ...

Goldmann-Rohde: Yes, our pulverer and I perform checks with the PaintChecker. And we were all able to use the device intuitively after a short briefing. Simply target the desired measuring point, trigger the measurement and the coating thickness is displayed. The PaintChecker mobile measures all color tones: from black to white, from red to green, from blue to yellow. All with a single setting.

How does the pulverizer actually know how thick the correct coating should be?

Goldmann-Rohde: A label is attached to every part carrier, denoting the customer, article, number of items, color and also the coating thickness. In the case of highly contorted parts, our experienced staff carefully examine the critical areas such as corners and edges.

You are an active member of the GSB ...

Dr. Zabka: We have been a member of

the major professional associations such as VOA, GSB International e.V. and VMRG for many years. GSB creates quality guidelines and monitors their application. This is documented by the award of a quality seal. We thus offer quality-assured performance for coated surfaces made of aluminum by meeting standards that go beyond the norms of the industry.

“From the inline coating thickness measurement, we can therefore not only check the quality of the coating, but also draw conclusions about the functional quality of the system technology.”

Dr. Felix Zabka

Managing Director ConceptColor

Let's stay with quality. How many points do you measure per part?

Goldmann-Rohde: We have ten individually adjustable spray guns per powder booth. Accordingly, our employees always check each product carrier from top to bottom. For example, if the PaintChecker tells us a coating thickness outside of the tolerance in a certain area, then we know

that e.g. the powder gun belonging to this area is not working properly and adjustments should be made.

Dr. Zabka: We can determine for each gun whether the coating application is okay. From the inline coating thickness measurement, we can therefore not only check the quality of the coating, but also draw conclusions about the functional quality of the system technology. Speaking of quality: The GSB regulations specify exactly how often a certain lot size should be measured – and we definitely check more frequently than required by the GSB.

How important is the documentation?

Dr. Zabka: Long-term storage of test panels and complete documentation of measurement results and process parameters are a matter of course for us. Some of our customers also want a measurement report for every order. If the customer actually has a complaint, each coating can be traced in detail. The documentation is therefore an important source of information.

There was certainly a time before non-contact coating thickness control. How did you check then?

Goldmann-Rohde: We only measured after curing, as soon as the material had cooled down; shortly before parts are

Managing Director Dr. Felix Zabka in a relaxed conversation with Ivan Utocenko and Silke Goldmann-Rohde in the lounge (from right to left)

On the wall, a dashboard informs about the company's quality indicators.



put into the packaging. Of course, that is far too late to correct the coating thicknesses. One could only examine the damage.

Dr. Zabka: Another method for setting the correct coating thickness was using sample bars that went through production. Of course this took a lot of time to get results and this always meant scrap.

Your quality standards are high – how do you control possible sources of error?

Dr. Zabka: On the one hand, coating quality is ensured by well-trained staff and effective self-monitoring in our laboratory. On the other hand, we have introduced some innovations in quality assurance. For example, we have had a monitor in our lounge for some time that shows all the key company figures. This means that our entire team is always up-to-date with "how things are going", to put it casually.

In the meantime, we have further developed the dashboard concept, where we map not only the company but also the quality indicators. Everyone can see at a glance the error rate of current coating jobs and also the overall development compared to previous months. By the way, the higher level of information is very well received by our staff.

Does that pay off at the end?

Dr. Zabka: Absolutely. Thanks to the PaintChecker mobile, the error rate of the coating has decreased significantly; we are now permanently in the lower range of the tolerance range – and that's exactly how it should be. Because too much powder consumption is an immense additional and, above all, unnecessary cost factor. I don't need to tell you that material prices have now reached dizzying heights. In terms of an economical and ecologically sustainable coating process, it makes sense to make optimal use of the tolerance range. And that's exactly where the PaintChecker supports us.

What is the future of coating thickness measurement?

Dr. Zabka: The focus of coating thickness measurement technology will shift even more to process-related quality assurance in the future. Because optimal coating processes are the basis for flawless products. A direct feedback of test results to the coating process is therefore required. This means that the measurement has to be moved in-line from the final inspection directly to the line.

Thank you for the interview.



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