A CONVERSATION WITH DR. PETER BIELE

CHAIR OF THE EXECUTIVE BOARD OF THYSSENKRUPP RASSELSTEIN GMBH, ANDERNACH, GERMANY

AEROSOL EUROPE: Dr. Biele, we are currently living in extraordinary times. A virus is dominating the world. How do you assess the current situation, in general?

Dr. Peter Biele: We have all seen more changes since the pandemic began than we could previously have imagined. My view of the current situation is that we are all personally learning to live with the virus. We learning to adapt in order to return to a normal life insofar as this is possible.

AEROSOL EUROPE: How has COVID-19 affected your business?

Dr. Peter Biele: The picture is mixed here. While the demand for our products worldwide at every stage of the pandemic was more than robust, the I am more cautious about the impact on our business. Here I believe that we are by no means finished with being off-balance when we examine aspects such as supply chain, security of supply, logistics, and the like.

AEROSOL EUROPE: The 3 criteria supply chains for our plants were not as stable as they should be. And here I am not only talking about steel, but also about all other auxiliary and operating materials up to logistics; there were enormous bottlenecks. Thus far, we have been able to hold our own, but this has been and still is a great challenge. But I do not want to conceal the fact that, in addition to supply issues, we have also been hit hard by cost developments.

innovation, quality, and customer orientation are decisive for your success. What is thyssenkrupp Rasselstein doing to keep the innovation process going?

Dr. Peter Biele: Yes, right. We are constantly driving innovation through investment, quality, and the commitment of our employees.

This is all based on our innovation-friendly corporate culture. In Andernach, our research and development team includes qualified engineers and technicians on three different teams, who deal with all aspects of manufacturing packaging steel. The focus is on improvements to the product and its production processes, as well as optimizing and developing packaging steel grades.

To this end, we also enter into development and technology partnerships with container manufacturers, fillers, and tool suppliers worldwide in order to further advance the production of resource-conserving and at the same time safe aerosol cans and components. We believe that dialogue and close cooperation with the entire value chain are the prerequisites for future innovations.

In addition, we have been using the finite element method (FEM) for several years to test the use of innovative packaging steels, make changes to can geometry, and reduce thickness; not as usual in the past by means of complex "trial and error" tests, but with virtual and efficient simulations thanks to the FEM. To this end, we have put together a team that helps our customers increase their efficiency.

Detailed descriptions of our packaging steels form the basis for product optimization of both the material and – together with our customers – the cans. With this process, improvements can be implemented much more quickly and while conserving resources. FEM is a technology that is also used in other high-performance industries. It has been used primarily in the automotive sector, but the method is still new in the packaging sector.
And clearly, we are also investing in modern systems that enable the production of even more sustainable packaging steels. A new finishing plant for special chrome-plated packaging steel is currently being built on our premises; it is expected to start operation in 2022. With this plant, in the future we will produce special chromium-plated material that will use chromium(III) instead of the previously usual chromium(VI) as input material in the processes and thus comply with the requirements of the EU REACH regulation.

But the two criteria of innovation and quality are just one side of the coin. On the other, there is a clear focus on the customer, which is expressed not least by shorter order times and more punctual delivery dates. Especially this year, 2021, we also had to learn from pandemic conditions that our supply chains are too vulnerable. And this applies globally, both to our own supply and to our production. Here we have learned a lot about what we will have to do to increase robustness.

However, we are pleased that we established an instrument in the market

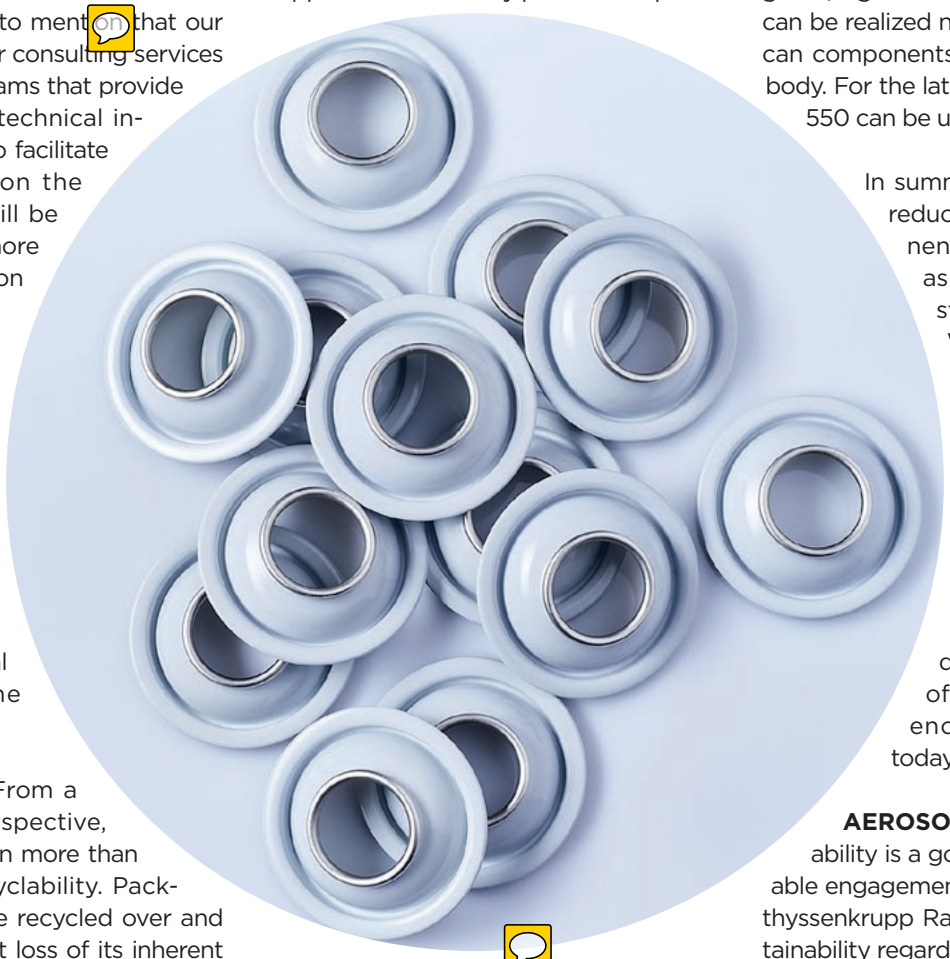
as early as 2018, one with which we can achieve a 14-day delivery time. Our rasselstein© Express tool is now an integral part of the supply system for many customers. In addition, we are working on solutions to shorten order lead time still more to enable our customers to better plan and reduce capital commitments. Last but not least, I would like to mention that our technical customer consulting services implements programs that provide easier access to technical information and also facilitate communication on the work level. We will be able to provide more detailed information soon.

AEROSOL EUROPE: Tinplate offers many advantages. One aspect is the recyclability of the material. What other advantages can you name that make this material attractive for the aerosol industry?

Dr. Peter Biele: From a sustainability perspective, tinplate offers even more than almost 100% recyclability. Packaging steel can be recycled over and over again without loss of its inherent properties. It is a permanent material. As a result, it's the perfect solution: Multi-recycling without loss of quality.

Consumers have also realized this in the meantime. In Germany, we conducted a survey with YouGov, a market research institute, asking consumers which product they would choose if it were offered in tinplate or plastic at the same price. 62% would opt for tinplate packaging and only 14% for plastic packaging. This clearly shows that consumers are now very concerned about the environment, because plastic waste in the oceans is an issue for many people.

And as far as our customers in the aerosol industry are concerned, we score points with them with an innovative, reliable product. In addition to new developments that make it possible to reduce the thickness of aerosol can bottoms and lids, such as rasselstein© Solidflex, we offer an extraordinary variety of valve plate material for every application and every product: Tinplated, special chrome-plated, blank, painted, plastic-coated... in addition to various coating combinations and finishing surfaces, we also offer BPA-NI solutions. Our valve plate material stands for excellent forming ability, very good homogeneity, tight tolerances, and high resistance in case of contact with the filling material.



AEROSOL EUROPE: The thickness of the material is constantly being reduced. What do you do in order to guarantee the good material properties of the product, such as rigidity and good break expansion?

Dr. Peter Biele: With our innovation rasselstein © Solidflex, we have a product in our portfolio that combines a very high tensile strength of over 600 MPa with a special elasticity. The outstanding mechanical properties of this packaging steel combined with its good formability make Solidflex the ideal material for aerosol can lids and bottoms. A special plus: By using this grade, significant thickness reductions can be realized not only of the aerosol can components, but also of the can body. For the latter, a DR formable TH 550 can be used, for example.

In summary, it is possible to reduce the use of components and body by 14% as compared to an EU standard aerosol can. We have been able to demonstrate this in a joint project with MAIKO Engineering and Lanico.

Sustainable side effect: The use of thinner packaging steels can significantly reduce the production of CO_2. And that is of enormous importance today.

AEROSOL EUROPE: Sustainability is a good keyword: Sustainable engagement plays a large role at thyssenkrupp Rasselstein. How is sustainability regarded at your company?

Dr. Peter Biele: At our parent company thyssenkrupp Steel Europe, where we purchase our hot-rolled strip for the production of our rasselstein© packaging steel, the topic of "sustainability" is very important, just as it is at Rasselstein.

We are currently doing everything we can to achieve our goal of climate-neutral steel production by 2050. This requires fundamental technological changes: On the one hand, the company will avoid CO_2 by using hydrogen (carbon direct avoidance); and on the other hand, CO_2 will be converted into valuable chemical products (carbon capture and utilization). Ultimately, the

carbon-neutral steel produced this way should not only be used in cars and machines, but also become an integral part of our company's product line in the form of a new, green packaging steel.

But sustainability cannot be regarded simply as one-dimensional avoidance of CO_2. An important aspect of our work is the sustainable procurement of raw materials, such as tin, with which we coat a large part of our material.

Since January 1, 2021, new obligations under directive (EU) 2017/821, which regulates trade in four minerals – tin, tantalum, tungsten, and gold – have been in place in the European Union. With this directive, the EU wants to prevent trade in these minerals that supports armed conflict and forced labor. Since then, companies that import these raw materials into the EU have been subject to extensive due diligence and/or testing obligations along the supply chain.

As one of the largest tin importers in Germany, we welcome the EU's decision. Clearly: The procurement of raw materials may not lead to the encouragement of conflicts and the violation of human rights. It is our concern that mining and processing of tin is done responsibly and in compliance with ethical principles. A transparent and trustworthy supply chain helps us achieve these goals. We therefore do not purchase raw materials that directly or indirectly finance or favor armed groups and we are in close contact with our suppliers at all times to increase transparency regarding the products they supply. We usually convince ourselves of the conditions on-site or we instruct third parties to regularly check the situation at our suppliers.

AEROSOL EUROPE: With increasing digitalization, dynamics and the complexity of companies are increasing. How are you implementing the digital transformation in your business?

Dr. Peter Biele: At thyssenkrupp Rasselstein, we are currently working on digital projects that can make our joint processes more flexible and faster. I can't say more about this at the moment, but you and our customers will learn more in the next year.

In order to be able to deliver premium quality to our customers, we have set up a seamless, meter-accurate quality management system from hot strip to finished warehouse. The monitoring and control systems are integrated into the entire production chain, so that each belt meter can be checked, analyzed, and tracked. The production has been digital for a long time.

AEROSOL EUROPE: What challenges do you see in the medium term in our industry?

Dr. Peter Biele: As mentioned above, our supply chains and thus the security of supply have to become more robust than they are today. Of course, we don't want to continue the current pandemic with its effects, but the new normal will not be the old one. Risks in security of supply and cost volatility can only be mitigated together; no one can take responsibility for this.

For the challenge of sustainability, I see good opportunities to score points over alternative materials if we manage better than before to deliver our good messages to the end consumer. My children, for example, and their friends know a lot about climate and resource protection, but the tinplate packaging is not well enough known.

AEROSOL EUROPE: Dr. Biele, we thank you for the conversation.