

A CONVERSATION WITH MARKUS TOMASINI

CTO OF THE NUSSBAUM GROUP AND CO-DEVELOPER OF THE NUCAN-PCR ALUMINIUM ALLOY



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 Nussbaum Matzingen AG has recently introduced its latest innovation; an aerosol can made from 100% post-consumer-recycled (PCR) aluminium. It is world's first pressure can that contains no primary aluminium at all and it won this year's German Packaging Award in the category "sustainability." Aerosol Europe talked to Mr. Markus Tomasini, CTO of the Nussbaum Group and co-developer of the Nucan-PCR aluminium alloy.

AEROSOL EUROPE: Mr. Tomasini, please tell us about the idea behind your innovation. How did it all start?

Markus Tomasini: It is all about sustainability. Talking to our customers and partners, we could see that there is almost no company in the aerosol industry that is currently not affected by the "sustainability-boom." Reducing a company's carbon footprint nowadays is crucial, and companies are looking for solutions to make their products or just simply their way of doing business more environmentally friendly. Many

consumers are extremely sensitized and wish to buy recycled products. Furthermore, in certain areas it is not only a competitive advantage to offer products that contain recycled content, but a legal requirement. And, of course, we at the Nussbaum Group are also challenged to make our products and processes more environmentally friendly. This is also a high-priority topic on our agenda.

In the end, the goal for Nussbaum was therefore clear: we wanted to offer aerosol cans made from recycled cans in order to implement a circular material flow as requested by the market for years already. Until now, no aerosol can supplier has offered this.

AEROSOL EUROPE: What were the restrictions so far?

Markus Tomasini: The main problem was safety. As most aerosols are pressurized after filling, the cans need to guarantee a certain pressure resistance. For a long time, the required strength could only be reached by using aluminium slugs made from very pure aluminium containing at least 99.5% virgin aluminium. In the meantime, the industry is using slugs made from various alloys and the amount of virgin aluminium has already been reduced. When it came to adding recycled material to this aluminium mix, it was already clear that there is not enough recycled aluminium available. Only 20% of the global aluminium demand may be covered by recycled material. So, the availability of the starting material was another challenge. Last but not least, even if a circular material flow can be realized, it often turns out to have a worse carbon footprint due to long transportation routes and complex and

costly collection and sorting processes.

AEROSOL EUROPE: What was Nussbaum's solution?

Markus Tomasini: We have come up with a concept, providing full transparency on the processing. The starting material we use is mono-material aluminium scrap from the German "Yellow Bin" waste disposal system, which is returned to collection points for recycling. The collected scrap is pressed, converted into slugs, and processed into aerosol cans by Nussbaum. We use our regular impact extrusion production process, the same production process that is also used for our standard cans. Thanks to close collaboration and the local organization of all the processors in the loop, the concept can be documented transparently. The waste collection point, the aluminium processor, and our factory are located within a span of 150km. We have short transport routes, something that optimally supports the sustainability goal. And what is extremely important: there are no compromises with regard to quality or appearance, nor are safety or processability compromised compared to standard aluminium aerosol cans.

AEROSOL EUROPE: What are the environmental benefits if a can made from 100% PCR material is used? Can you share some concrete numbers?

Markus Tomasini: Emissions from raw aluminium production vary widely; they depend mainly on the source mix of electricity for electrolysis which includes renewable power, nuclear, and coal/gas. The trade association European Aluminium, for example,



published average data and compared the production of recycled aluminium to the global average production of virgin aluminium. 0.5 tons of CO2 per ton of production are created for the recycled aluminum, as compared to 17 tons for virgin aluminium. Our internal impact assessment shows that the CO2 savings for a 270ml PCR can are around 207.4 grams/can.

AEROSOL EUROPE: What future do you see for PCR products?

Markus Tomasini: There is significant interest from the market. Especially the cosmetics industry is keen to increase the share of aluminium packaging made from 100% PCR material. But food and pharma companies are also considering PCR aluminum for their packaging items. At Nussbaum, we have already expanded our product portfolio and we have manufactured screw cans, pill cans, deo roll-on cans, and tubes made from 100% post-consumer-recycled aluminium. We believe that sustainability will remain a very important topic in the packaging industry and also in general. It is impressive to see how recycling rates of aluminium and other material are



continuing to rise as more and more people commit to the protection of the environment.

AEROSOL EUROPE: So will Nussbaum only use PCR aluminum in the future?

Markus Tomasini: No, we will still process standard aluminium as well as aluminium alloys to make our cans and tubes. Aluminium packaging – also made from virgin aluminium – is much greener than many people think. Aluminium can be recycled infinitely with around 95% less energy consumption

than is required for the production of primary aluminium and about 75% of the aluminium ever produced is still in use today. The long life cycle makes aluminium one of the most energy-efficient and resource-preserving raw materials. Aluminium also offers excellent protective effects thanks to the fact that it is diffusion- and light-proof, solid and unbreakable. Last but not least, it is a low-weight material – it is three times lighter than steel and four times lighter than glass.