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Aluminium in mobility: more than lightweight material | International Aluminium Journal

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Aluminium in mobility: more than lightweight material

Why weight mattered even before the powertrain question: SAG CEO Karin Exner-Wöhrer on aluminium, recycling and Europe's opportunities in mobility.



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SAG has developed a cryogenic tank system for the GenH2 truck that is set to shape the future of mobility. The lorries are already on the road.

The mobility of the future faces an apparent contradiction: vehicles are to become more powerful, safer and more sustainable, while at the same time consuming as little energy as possible. This is precisely where Karin Exner-Wöhrer, CEO of Salzburger Aluminium Group (SAG), sees the strength of aluminium. The material, she says, is no longer just a lightweight construction material but is developing into a strategic factor for efficiency, the circular economy and industrial competitiveness. Drawing on a range of issues that currently occupy the industry, the International Aluminium Journal spoke to the CEO of the internationally active manufacturer of tanks and lightweight components. On topic: what modern, sustainable and economically viable mobility with aluminium can look like in real-world industry.

The weight problem is older than the powertrain question

But why is aluminium becoming ever more important when we talk about the mobility of the future? Weight is certainly only one factor, although a decisive one: ‘The weight problem is older than the powertrain question,’ says SAG CEO Karin Exner-Wöhrer. At its core, the question of materials – whether for internal combustion engine vehicles, battery-electric vehicles or hydrogen vehicles – revolves around fuel consumption, range and space.

Lightweighting with aluminium is therefore a universal driver. In manufacturing practice, however, the picture is complex. Even though aluminium can solve many problems, material selection can be complicated. Steel dominated the automotive industry for years. Aluminium has proven itself, but other materials such as magnesium will also play a role in the market. ‘It is not a steel world or an aluminium world. For every problem, we look for the solution with the most suitable material.’ These solutions are not necessarily multi-material concepts, however; the managing director takes a critical view of these.

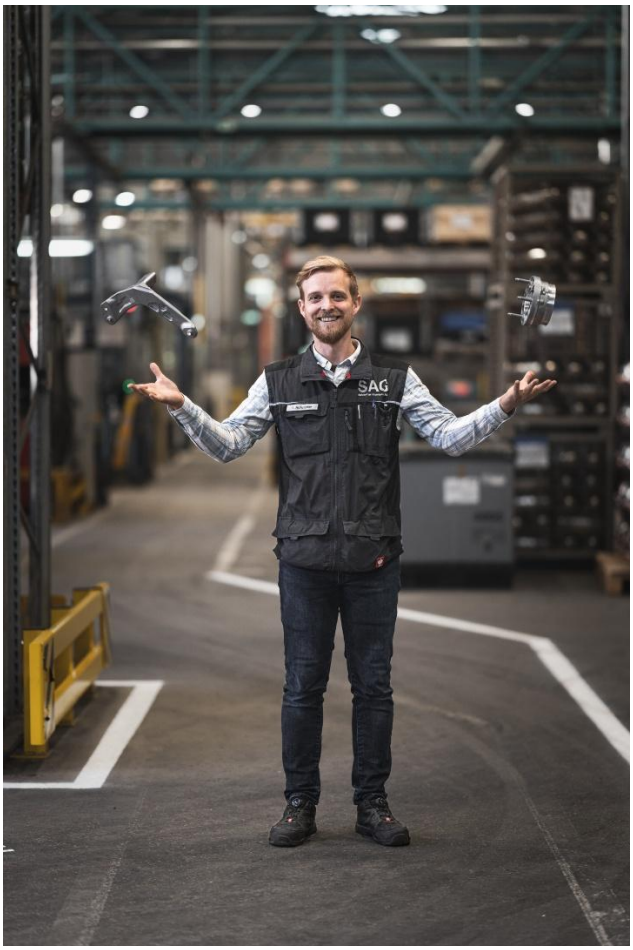
According to Exner-Wöhrer, the end of life of a vehicle must be the deciding factor when it comes to choosing materials. In her view, a closed material cycle must be ensured – and by economically viable means. ‘Weight savings of a few grams or kilos are of no benefit if you use five different materials. It must also be possible to dismantle and recycle the part economically,’ explains Exner-Wöhrer. Where components are joined, the CEO advocates technologies that allow easy separation. SAG’s engineers are also working on this themselves. Aluminium also stands out for its good recyclability. Secondary aluminium therefore already plays a role in mobility today.

Economic viability and sustainability go hand in hand

Only those who produce sustainably stand a chance in the market. In practice, however, this always has to be weighed against the costs incurred. Karin Exner-Wöhrer explains: ‘If the last 10 per cent of a project are no longer in proportion, in cost terms, to the planned environmental benefit, then we won’t do it either.’

However, decisions on materials and production processes are no longer influenced solely by technical or ecological criteria. Geopolitical developments, trade policy and supply chains are playing an increasingly important role. According to Exner-Wöhrer, the industry is shifting from a phase driven very strongly by sustainability into a new one whose priorities are even more dependent on global dynamics. ‘Tariffs exert enormous price pressure on us. To offset these costs, we sometimes put environmental considerations in the design on the back burner. It’s a balancing act.’

SAG has several sites on different continents. The company also plans to open a site in India soon. For Karin Exner-Wöhrer, this is above all a matter of localisation. As an example, she cites the production of aluminium tanks – for diesel, LNG or liquid hydrogen. ‘Nobody wants to move 1,000 litres of air. That’s why we locate production as close to the customer as possible.’ Manufacturing in India for the Indian market avoids costly sea freight. Owing to potential blockages such as that of the Suez Canal, this route can no longer be relied upon one hundred percent.



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SAG manufactures components for the mobility sector and, amongst other things, utilises new manufacturing methods such as rheocasting, which promises components with shapes close to the final design.

‘We have to be allowed to fail’

For Exner-Wöhrer, however, the answer to many of these challenges lies not solely in establishing production sites. What matters above all is the innovative capacity of European companies. This is illustrated by China. SAG sees no market for itself there; it is too large: ‘We are a niche player,’ says Exner-Wöhrer. Looking at the mobility sector as a whole, however, she takes a more nuanced view: ‘China has got a lot right. They bet on one technology, batteries, and perfected it.’ When it comes to the question of ‘make or buy’, the CEO has a clear answer: ‘As Europe, we could buy in such components and focus our development effort on other things.’ Karin Exner-Wöhrer sees this as a great opportunity for the domestic market. Batteries have to be integrated into an overall system, which includes infrastructure and recycling. These problems have to be solved locally. ‘We can innovate here. We have to define priorities and become pioneers in them, just as China has with batteries.’

To become pioneers, CEO would like to see more freedom: ‘We need more opportunities again, and more courage to try things out pragmatically – and to be allowed to fail pragmatically, too.’

Aluminium in the air and on the water

The CEO is already offering a foretaste of this pragmatism. The company is already working on new fields of mobility and has new ideas for future development. SAG was the first company to

put a liquid hydrogen tank on the road together with an OEM. The cryogenic tank system offers a high transport volume and causes an extremely low payload loss. What Exner-Wöhrer still finds lacking is the corresponding infrastructure: ‘Trucks with this modern powertrain won’t have the desired effect until the infrastructure is in place nationwide.’

SAG also sees growth potential in drones. ‘We see interesting developments in drones, including in transport. Last-mile applications look quite profitable to us, owing to the high unit volumes,’ explains Exner-Wöhrer. The company is also working on a research project on supplying airports with hydrogen as the fuel of the future for aviation. The entrepreneur and her engineers are looking not only skywards but also to the water. ‘The marine sector is traditionally very steel-driven, but there are changes there too – in terms of both fuel and weight. Weight therefore also plays an important role.’

This shows that the aim of making vehicles as light as possible is independent of the particular mobility sector. The potential for the aluminium industry is accordingly huge: ‘We have enormous potential in Europe, if we were just allowed a little more leeway,’ sums up Karin Exner-Wöhrer.



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Karin Exner-Wöhrer has been CEO of the SAG Group since 2015.