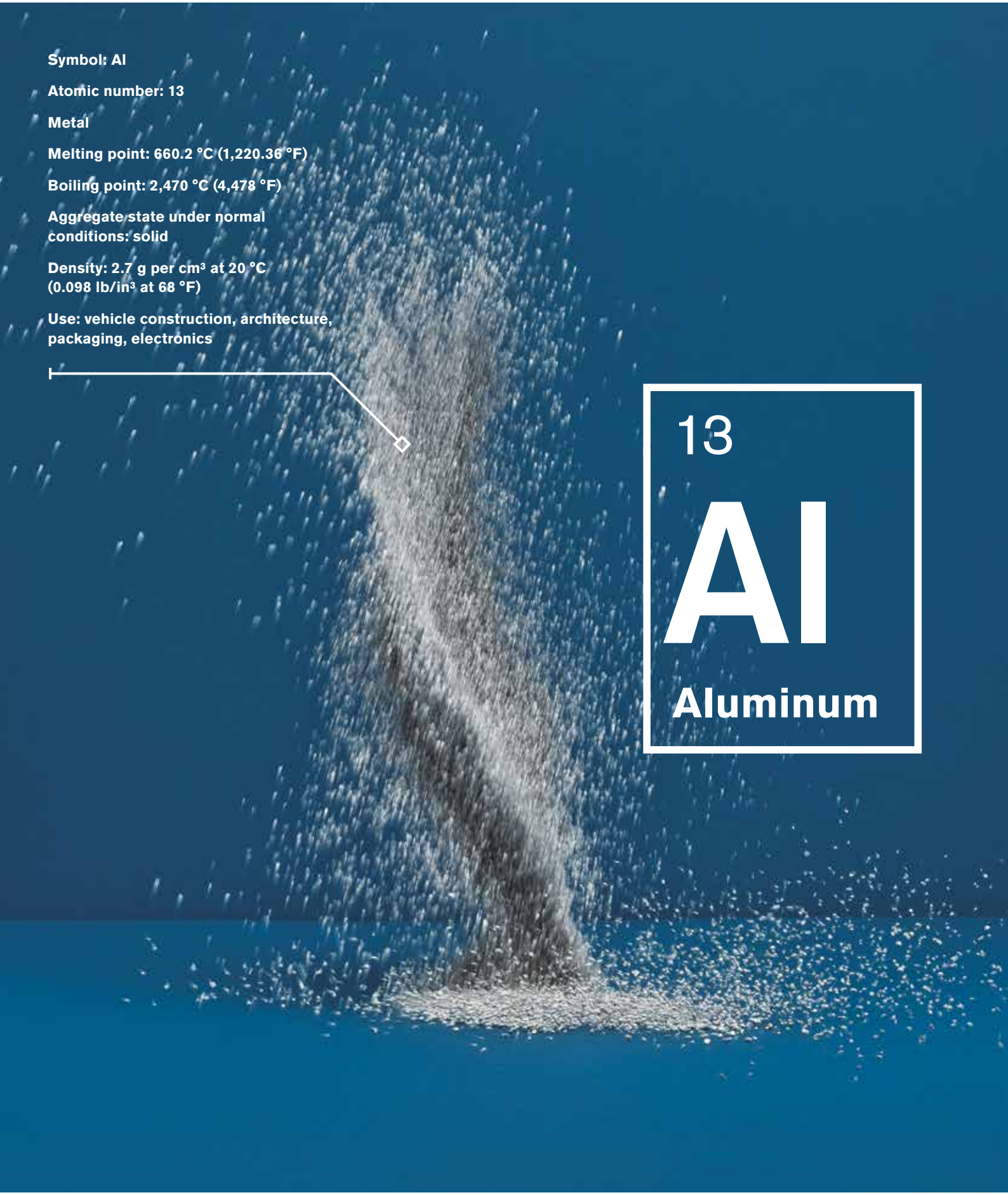

Symbol: Al

Atomic number: 13

Metal

Melting point: 660.2 °C (1,220.36 °F)

Boiling point: 2,470 °C (4,478 °F)

Aggregate state under normal conditions: solid

Density: 2.7 g per cm^3 at 20 °C (0.098 lb/in^3 at 68 °F)

Use: vehicle construction, architecture, packaging, electronics

Heavy duty

Even in mass production models, the aluminum content in some vehicle bodies is nearly 50 %. An extremely lightweight metal, but at the same time extremely challenging to paint. Powder coating from Wörwag solves the problem. It is used to coat the cover plates on B-pillars, among other components.

Ever lighter, ever more economical: amid the general dieting trend in body construction, aluminum is playing an important role. The metal is some two-thirds lighter than steel, but considerably more difficult to coat. Without pretreatment, paint simply doesn't stick. The aesthetic and durability standards in this field of application are extremely high. A case for the acrylic powder from Wörwag, which enables energy-efficient coating of the aluminum cover plates on cars' B-pillars.

When Arne Mielke speaks of the harmonious overall appearance of a Audi A8, he knows precisely how much development work goes into ensuring that the paint ultimately does what is expected of it. "On cars with tinted rear windows, the cover plates in high-gloss black are a perfect match with the design," says the Director of the Powder Coating Lab. Acrylic powder also guarantees flawless gradation as well as a brilliant, scratch-resistant surface.

ARNE MIELKE *has headed Wörwag's Powder Coating Lab since September 2015. The chemical engineer is an expert in aluminum coating processes. And he appreciates the everyday benefits of aluminum: "Perfect for packing sandwiches."*

Application of the coating is relatively simple: apply the coating, cure, done. The cover plates are packaged and shipped directly after coating. The key to success when working with aluminum surfaces is the pretreatment, which ensures an optimal adhesive bond on the substrate. This is different from the application process on sheet steel, for example, on which the bond with the substrate can often be assured even without pretreatment. Alternatives include foils and liquid coatings. Wörwag also offers these types of products.

Aluminum looks set to become even more important in body construction. And with it, the use of powder coating will become more important as well. In the current C-class from Mercedes, the aluminum content is 50 % of the total. Compared to the first VW Golf, the aluminum content in the seventh generation rose from 50 kilograms (110 lbs) to 140 (308 lbs). No doubt about it—aluminum is no lightweight.

ROUGHLY

one

BILLION METRIC TONS

of primary aluminum have been extracted worldwide since 1880. Three-quarters of it is still in circulation and is recycled over and over again. Reprocessing into secondary aluminum requires just 5 to 10 % of the energy required for primary production.

Robust and beautiful: the B-pillars of the Audi A8 4.0 TFSI quattro are hidden behind aluminum cover plates covered with powder coating from Wörwag.

Photos: Audi AG, Frederik Laux