

Creativity and Perfection: Innovative materials in the new S models

As a leading brand in automotive styling, Audi highly values its Color & Trim area and the colors and materials that go into its cars. In the new Audi S6 and S7 Sportback, interior designers have come up with another innovation – decorative “aluminum/Beaufort wood” inlays, in which the lightweight metal and wood enter into an elegant alliance.

Creativity meets perfection: underlying each cutting-edge design solution from Audi is a tremendous amount of design effort. “We came up with the initial idea for the new material back in November 2005,” reports Johanna Hoch, design manager in the Color & Trim area, “but implementing such a sophisticated product involves many challenges.”

The fundamental philosophy of Audi is to take on new ambitious projects and overcome their complications – in all areas of the company. In early 2009, Johanna Hoch and her colleagues reached their first milestone: At the Detroit Motor Show, the Audi A7 Sportback concept car was displayed with decorative Beaufort oak wood inlays that were milled from individual blocks of wood. For the production car, on the other hand, the inlays were implemented as an exclusive veneer that was developed with micron precision, in which narrow strips of light and dark stained wood lie next to one another.

Meanwhile, for models such as the A6 and A7 Sportback, Audi offers decorative Beaufort oak inlays whose appearance suggests yacht building.

In the Audi S6 and S7 Sportback, the Color & Trim team is now presenting the next evolutionary stage. The material “aluminum/Beaufort wood” combines black dyed-through wood and aluminum. This composite material creates an image of formal elegance and requires a great deal of effort to manufacture.

Five thin wood veneer strips and one aluminum panel, which is about 0.4 millimeter (*0.02 in*) thick, are adhesively joined. This produces a composite part that is about five millimeters (*0.20 in*) in height. A large number of these flat blocks are layered atop one another and glued. In another step, the layered material is then vertically cross-cut into veneers.

Johanna Hoch comments on the challenges in developing the production process: "We had to develop a method for joining wood and aluminum in such a way that the end product would remain stable and not break during forming operations. Then, we looked for a machine that could precisely cut veneers with a thickness of just 0.65 millimeters (*0.03 inch*). Wood and aluminum have very different strengths and stresses. This production step might best be compared to an attempt to cut a dessert torte with all of its delicious layers into extremely thin slices."

The only machine that could cut the veneers in Audi's required quality was located at a specialty company in the USA. Audi has since established a close working relationship with this company. Audi has exclusive rights to this technology, ensuring a clear competitive advantage that will last for many years.

The aluminum/Beaufort wood material is now celebrating its premiere in the Audi S6 and S7 Sportback. Soon it will also be available in S4, S5 and RS models. Another new optional feature in the S6 and S7 Sportback are decorative inlays in Carbon Atlas, in which a carbon-fiber mesh can be laid with excellent uniformity, even over convex and concave shapes.

The entire interior area is designed in a sporty black color, which can be brightened with the optional lunar silver color on parts of the seat and the headlining.

To emphasize their handcrafted qualities, special diamond stitching on the center panels is available on S sport seats. The panels are made of Valcona leather in the colors black and lunar silver; each is stitched with a contrasting seam color.

Extending the range of seat options is a leather/Alcantara version with diamond stitching.

With regard to paint finishes, two special-effect paints are offered. They impress with their excellent transparency and intensified color brilliance.

The great efforts that the brand with the four rings expends in the Color & Trim design area also extends to its selection of leather qualities. Fine grain leather and handcrafted-like workmanship give the interior a feel-good character.

The design process begins with selection of untreated leathers that possess the special qualities needed to satisfy the high quality standards.

A cow's hide has a surface area of about four to five square meters (*43.06 to 53.82 sq. ft.*). The highest-end sections of hide are processed according to the requirements profile for the specific seat shape, contour and loading. Audi leathers are all tanned chrome-free to avoid environmental pollution by chrome in the tanning process. The leather is always dyed through, so that no other color shows in the needle holes of seams, and so that wear and exposure to sunlight do not cause any undesirable changes to occur.

Audi offers various qualities of leather in the new S6 and S7 Sportback. Along with a combination of leather and Alcantara, there is Milano leather – a natural grain leather with a pattern that underscores the especially rugged and durable character of these vehicles.

Valcona leather represents the peak of leather quality in the new S models. It is an especially soft natural grain leather, which of course has been processed with special attention to high surface quality and elegant uniformity.