

Work and relax in an Organic Shell

Nuez Lounge Bio® is a beautiful and comfortable armchair that respects the environment. It was designed by Patricia Urquiola (Milan, Italy) for the international brand Andreu World (Valencia, Spain). The unique furniture is made using lamNature®, a new generation of biobased PHA material.

In its robust casing one sits as if wrapped in the soft felt of a cape and protected as is the kernel of a walnut. With an unmistakable material texture, the natural feeling of Nuez Lounge Bio arises from the harmonious simplicity of lines and volumes, and the choice of *ethical* materials that are no less aesthetic.

Responsible design and manufacturing are key principles in Patricia Urquiola's design, that at its heart is an armchair designed to reduce the associated environmental impact to a minimum along with giving the maximum to the user in terms of comfort and beauty. Paper, walnut, PET, PHA: the formal idea at the centre of Nuez Lounge Bio is the gesture of folding paper, the leitmotif of the Nuez armchair designed by Urquiola, of which this lounge model is the *natural*, literally and figuratively, continuation.

"The backrest folds to create a large ripple to form the seat in soft and continuous curves, simple and beautiful", says Patricia. "Nuez means *walnut* in Spanish: the rough ribbed surface of the shell is shot in the undulating texture of the body. In this project, we have adopted an extremely contemporary approach, inspired by the flexibility and mutability of spaces dedicated to smart working. We did this", she continues, "by designing an office chair as comfortable as a lounge chair, suitable for a 'soft office' created in a home environment, or for a workstation".

For Patricia it is also important to use natural and *circular* materials. "Today", Patricia goes on, "a designer must pay attention to the durability of the product design, we must interpret and use the materials in a better way than in the past, always keeping in mind the principles of circularity and including the end of life of the object in the design process: for example, making sure it is easy to disassemble and study the possibilities of the reuse of all components. My work with Andreu World and with many other customers is based on these issues. In the case of Nuez Lounge Bio, the choice of a biopolymer was a prerequisite. Our intention since the initial briefing was to make an armchair sustainable in all respects: we have never taken into consideration the idea of using a traditional plastic material.

Born to be green

The upholstery of Nuez Lounge Bio by Andreu World is made with the developed Circular One® fabric by Andreu World which is made entirely from recycled PET bottles and textile waste. The covers come from 100 % recycled padding and are recyclable as the absence of glues makes it easier to replace when the need or the desire suggests it. All components are designed to be disassembled and / or repaired to ensure a long life for the chair of use. The central base in ash wood is FSC® 100 % certified.

The decisive trump in terms of sustainability, however, even the most innovative aspect of this *soft office* armchair is represented by the shell; probably the first application of a bioplastic material in a structural and aesthetic component of large dimensions in the furniture industry. For Andreu World its realization was a stimulating challenge that appeared right from the start.

The shell of the armchair is made entirely with lam Nature, a special grade of PHA. "Maip has in recent years mainly dedicated itself to the study of compounds based on PHA, which we describe as *the sleeping giant*, the only biopolymer in the world absolutely of natural origin capable of degrading in any environment, controlled and uncontrolled", as Eligio Martini, CEO of MAIP told bioplastics MAGAZINE.

The compound used is based on a special PHBH and contains natural fillers as well as additives of vegetable and/or organic nature. In this case, the PHA is obtained from the bacterial fermentation of sugar processing waste. The compound meets the needs of Andreu World for a material with very high dimensional stability, as well as mechanical strength, thermal resistance, colour stability, and hardness, while also offering the possibility of highly precise surface texture reproduction, so as to make it possible to avoid painting.

Circularity in the team

The bioplastic material was developed by Andreu World in collaboration with the Maip Group (Settimo Torinese, Italy). The PHBH-based compound had already been used before, but not yet on a wide scale and its use in an industrial product of significant dimensions (the armchair measures 80.5 x 86 x 102 cm in height, including the 43.5 cm high four-star swivel base) required considerable effort in terms of research and development.

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"All components are conceived for easy disassembly", emphasizes the designer Patricia Urquiola. "The coated part it's completely removable from the body, which it is attached to with a mechanical solution, which eliminates the use of glue".



The Nuez armchair BIO lounge, ergonomic and luxuriously welcoming, marries the needs for smart working, in whose times and spaces of work and relaxation are fluid, with an interconnected mutability that is required for furnishings.



The shell is printed with biothermopolymer or lamNature bio thermopolymer by Maip, obtained from the fermentation of waste of sugar processing, enriched from reinforcing fillers and original vegetable and / or organic additives.

"The moulded component has a weight of 12.5 kg and is moulded on a 25,000 kN machine. Cycle time is just over a minute, despite the thickness of the component in some places being more than 10 mm", Eligio continued

"Experimenting with thermoplastics implies many technological challenges and not just a few critical issues. Andreu World worked closely together with Maip and with the manufacturer of the mould for about two years, formulating various compounds that have been tested by the Turin company through a further selection process in which the materials were subjected to printing tests, to solve every possible problem in the manufacturing process. The material had to satisfy multiple requirements: excellent dimensional

stability, mechanical strength and thermal, lasting colour (it is produced in four colours), stiffness, and a high aesthetic quality surface finish that allows us to eliminate the varnish. The final formulation, based on PHA reinforced and modified on impact, has outlined all the specifications required for the approval of the sessions. In addition, all of their products are guaranteed for a lifetime of use of at least ten years; they must therefore undergo very rigorous quality tests. Obtaining this result with a new material," concludes Andreu World, "makes us very proud". **MT**

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