

IMPROVING FURNITURE COMFORT AND SUSTAINABILITY WITH ADVANCED MATERIALS

The continuous evolution of today's flexible workspaces, homes and personal lifestyles are elevating customer expectations for furniture. Whether at work or home, consumers are no longer satisfied with "one-size-fits-all" solutions. This is driving the need for increasingly advanced material solutions.

Industry Trends



Sustainability - Environmental impact is becoming more important for both businesses and consumers. Leading global furniture manufacturers are turning to bio-based and recyclable alternatives to virgin material. Consumers are looking for manufacturers to take the lead in addressing global challenges, such as ocean plastics waste.



Evolving Office Environments - For many years, office environments have been changing to encourage more flexible and collaborative workspaces. Cubicles and private offices have given way to office environments with flexible workspaces where employees can work in groups of different sizes, and in some cases, share workstations rather than have assigned seats. Plus, the office environment is changing even more due to global pandemics—contagious diseases are elevating the importance of sanitizing office environments. Consequently, lifecycle analysis for materials must account for repeated chemical exposure to sometimes harsh cleaning products.



Green Chemistry - Consumers and global regulators are focusing more on the importance of green chemistry. Manufacturers that can pro-actively eliminate volatile organic compounds (VOCs) and hazardous chemicals will ensure their products are not potentially subject to current and future regulatory action.



Design Flexibility and Color - Even if some consumers ignore sustainability or other megatrends, superior design is still a fundamental benchmark of the manufacturer's commitment to craftsmanship and an expression of buyer's personal style. Global market leaders are using materials such as thermoplastics to achieve complex designs and color matching to differentiate their premium products from the competition.



Ergonomics - Medical experts are increasingly focused on the risks associated with sitting for extended periods of time. As a result, standing desks are becoming more popular and office chair design is improving to mitigate the impact of long periods of sitting.

Material Solutions for Furniture

For many years, DSM has partnered with the world's leading furniture brands to deliver material solutions that overcome a wide range of design challenges. Our materials solutions do more than add strength and beauty to furniture. We focus on delivering materials with a low or neutral carbon footprint, eliminating hazardous substances and supporting recycling.

Akulon®

The Akulon material portfolio of polyamides (PA6) provides proven solutions for furniture structural parts.

Akulon PA6 allows for lightweight, durable, recyclable, and cost-effective solutions in comparison with metals (no corrosion protection coating needed with PA6). Akulon UltraFlow PA6 allows for great appearance solutions since it yields a better surface appearance than PA66 (even at 50-60%GF). Both materials are used globally for chair frames, bases, arms and other structural parts.

For manufacturers looking to take a leading role in sustainability, Akulon RePurposed provides exceptional solutions. Made from recycled fishing nets recovered from the Indian Ocean, Akulon RePurposed delivers excellent material performance while protecting marine life and supporting the circular economy.

Grade	Tensile Modulus MPa	Flexural Strength MPa	Flexural Modulus MPa	Recycled content % *
Akulon K222-D unfilled PA6	3200	105	2650	-
Akulon K224-G3 15% GF PA6	6000	170	5200	-
Akulon K224-LG6 30% GF PA6	9500	235	8600	-
Akulon RE15 15% GF PA6, recycled ocean plastics	5800	160	5800	100
Akulon RE30 30% GF PA6, recycled ocean plastics	9400	240	8500	100

* Akulon RePurposed Grades: Percentage recycled ocean plastics for the base resin. Glass fill is new material.

Arnitel®

Arnitel is an advanced thermoplastic copolyester (TPC) that blends hard and soft segments at the molecular level to deliver high flexibility without compromising mechanical strength, durability, chemical resistance and comfort.

This flexibility allows it to be woven, making it a popular material for seat suspension and fabrics. Arnitel can also be made into TPC foam beads that allow for greater shape retention and ergonomic support than current cushion solutions.

We are also proud to offer Arnitel Eco, a bio-based version of Arnitel made using renewable rapeseed oil (canola oil) in place of traditional petroleum-based feedstocks. Arnitel Eco boasts comparable performance characteristics while delivering up a 40% carbon footprint reduction.

Grade	Shore D	Tear Strength kN/m	Tensile Modulus MPa	Bio Content %
Arnitel EL250	25	68	25	-
Arnitel EM400-08	33	82	40	-
Arnitel EL550	54	150	170	-
Arnitel EL740	70	215	800	-

Eco Solutions

Grade				Bio Content %
Arnitel ECO L400	34	75	50	52
Arnitel ECO L460	45	113	85	34
Arnitel ECO L700	65	172	340	22

To learn more about DSM's portfolio of advanced material solutions for furniture, contact us by visiting [DSM.com/contactdem](https://www.dsm.com/contactdem).



Royal DSM is a global, purpose-led, science-based company active in Nutrition, Health and Sustainable Living. DSM's purpose is to create brighter lives for all. DSM addresses with its products and solutions some of the world's biggest challenges while simultaneously creating economic, environmental and societal value for all its stakeholders – customers, employees, shareholders, and society at large. DSM delivers innovative solutions for human nutrition, animal nutrition, personal care and aroma, medical devices, green products and applications, and new mobility and connectivity. DSM and its associated companies deliver annual net sales of about €10 billion with approximately 23,000 employees. The company was founded in 1902 and is listed on Euronext Amsterdam. More information can be found at www.dsm.com.