

Vulkollan®

Vulkollan is one of the most powerful elastomers in the market, combining highest mechanical load-bearing characteristics with highest dynamic load-bearing capacity. Therefore, Vulkollan is preferably used for superior tasks in many technical fields.



In a multistage process developed by Covestro, solid Vulkollan is produced through chemical reactions between polyester polyols of the high-quality Vulkollan range, Desmodur 15 and glycols. Desmodur 15 is the trade name for 1,5-naphthylene di-isocyanate (NDI) from Covestro. The ultra-high-performance elastomer covers a hardness range from approximately 65 Shore A up to 60 Shore D. Vulkollan produces wheels and castors to deal with highest dynamic loads, technical and semi-finished parts.

Cellular Vulkollan is produced from Vulkollan polyols, Desmodur 15 and water. It covers a density range from approx. 300 up to 850 kg/m³ and combines high volume compressibility with minimal transverse expansion. Cellular Vulkollan is used for the manufacture of superior damping elements, such as bumpers, springs, and NVH (noise, vibration, harshness) elements.

Besides the classic multistage process, solid and cellular NDI-based cast polyurethane elastomers can also be manufactured from stable NDI-prepolymers offered by Covestro. These products are recommended especially for small- and mid-scale production.

Ultimate solid and cellular solutions

NDI-based cast polyurethane elastomers

Whenever applications require highest mechanical load-bearing characteristics and highest dynamic load-bearing capacity, NDI-based cast polyurethane elastomers are the material of choice.



NDI-based cast polyurethane elastomers can have a solid or a cellular structure. In a multistage process, these ultra-high-performance elastomers are produced through chemical reactions between polyols, NDI and glycols or water.

In the first step, prepolymers are produced from polyols and NDI. In the second step, prepolymers are reacted with glycols (solid elastomers) or water (cellular elastomers) by mixing, and these mixtures are poured into open molds.

Solid elastomers are produced by casting at temperatures exceeding 212°F (100°C). cellular elastomers require temperatures around 194°F (90 °C). The reaction mixtures cure in open/closed molds to form solid/cellular elastomers. After demolding, the elastomers are subject to a special maturing process that is essential to achieve exceptional mechanical and dynamic properties.

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A great advantage to both TPU and urethane castings is their ability to bond to other materials such as metal. In both processes metals are carefully prepped and coated with a chemical primer. The primer reacts with the base metal to form a strong chemical bond. The primer will also react when it comes in contact with the hot urethane of cast polyurethane or polyurethane injection molding. The end result, is a urethane bond between the primer and the base metal which is incredibly strong.

Polyurethane bond integrity is vital for components such as wheels and rollers. A bonded elastomer is able to withstand higher loading than an un-bonded elastomer.

Polyurethane bonding to something like a metal plate also simplifies design details such as mounting and part orientation.

Urethanes are outstanding materials that produce exceptionally durable goods. The fact that parts may be produced by urethane

casting or urethane injection molding adds to their versatility.

The decision between polyurethane casting and polyurethane injection molding should be made carefully by taking the entire scope of the project into account. There are many advantages to each molding technique.

The experts at Gallagher Corporation have decades of experience with each process and would be delighted to speak with you at length about the specifics of your individual project.