

PRESS RELEASE**PRMPR019EN****Promix Solutions and STC Spinnzwirn make artificial grass grow denser**

Winterthur, Switzerland – April 2026 Artificial grass is a product in ever-increasing demand. It has long been used not only on soccer fields but also in entire hotel complexes and recreational areas. The advantages over natural grass in the age of climate change are obvious. Artificial grass conserves water resources and is low-maintenance. But can artificial grass grow even denser? Yes, it can! Promix Solutions AG from Winterthur, Switzerland, and STC Spinnzwirn GmbH from Chemnitz, Germany, have developed a process in close cooperation that enables the production of more voluminous artificial grass blades.

The filaments and tapes used to produce the grass blades are typically manufactured on special fiber extrusion lines from STC. In this process, monofilaments or tapes made of polyolefins are produced via an extrusion process. These are cooled in a water bath and then mechanically stretched, heat-treated, and finally wound onto spools. In a subsequent process step, the fibers produced in this way are tufted together with a backing fabric using the tufting process to form an artificial grass mat. The more blades and the thicker the individual blades are, the denser the grass becomes. And this is precisely where the new patent-pending process comes into play. The STC fiber extrusion line has been equipped with Promix Microcell technology. In this process, a very precise amount of environmentally neutral gases such as CO₂ or nitrogen (N₂) is added to the melt during the extrusion process. The gas-laden melt is homogenized using a special cooling mixing technique, and the gas is completely dissolved in the melt. The melt temperature is further lowered and stabilized. As the melt exits the spinneret, extremely fine microcellular bubbles form within the fibers. The challenge lies in precisely controlling cell formation to achieve the finest possible and highly uniform cell structure. This is because the filaments must subsequently be drawn by a factor of 4–10 without any fiber breaks.

It has been demonstrated that Promix MICROCELL technology integrates remarkably well into STC spun yarn fiber systems. This allows the systems to operate reliably at the same throughput. Depending on the size, the system produces between 100 kg and 600 kg of fibers per hour. However, the grass blades produced in this way are 10–20% thicker than conventional artificial

grass fibers. During weaving, this results in a denser grass carpet—or, for the same grass density, a 10–20% reduction in raw material usage. An interesting side effect is that the artificial grass blades also look significantly more natural. The cells on the surface create a textured and slightly rougher feel. The green color of the blades shimmers in slightly different shades. These effects give the grass a very natural appearance. If desired, this effect can be specifically prevented by using a skin without a cellular structure.

Surprisingly, it has been shown that the mechanical properties of the microcellular fibers differ only slightly from those of conventional fibers. Thus, the tensile strength and elongation at break of the fibers are at a very similar, only slightly lower level. For a fiber manufactured from LLDPE using the monofilament process with approximate dimensions of 1.5 x 0.25 mm, the values were as follows:

	Tensile strength	Elongation at break
Conventional fiber	1.7 cN/dtex	81%
Fiber with microcell structure	1.5 cN/dtex	75%

However, microcell fibers will not yet be found on soccer fields for the time being. The very high wear requirements cannot yet be fully met. To improve this, the encapsulation of the microcell structure with a conventionally manufactured outer layer is being tested.

The new technology helps reduce plastic consumption and thus protect the environment. The associated cost savings are also welcome. Together with the natural appearance, this will certainly contribute to further increasing the use of artificial grass.

Further applications of Promix MICROCELL technology in the field of fiber processing are currently being evaluated. As a result, carpets and clothing made from polyester, polypropylene or polyamide fibers are expected to become denser or lighter in the near future.



*Left: Microscopic cross-sectional view of the microcell structure of a blade of grass.
Right: Volume+ artificial grass*



Fiber extrusion line from STC Spinnzwirn with Promix Microcell Technology for more voluminous artificial grass filaments

Images: STC Spinnzwirn GmbH / Promix Solutions AG

About Promix Solutions AG

Promix Solutions AG is the leading supplier of unique key components and solutions in the area of mixing, foaming and cooling in plastics processing and polymer production. Promix serves the industry with effective solutions for the reduction of the environmental footprint, cost savings and quality improvements in extrusion and injection molding. A motivated team with long standing experience and extensive process and application know-how ensures excellent consultancy and service. The product portfolio includes Foam Extrusion Systems, CO₂/N₂ Gas Dosing Stations, foaming and nucleation additives, Key Components for the production of Light Foams, Mixing Nozzles, Melt Blenders, Melt Coolers and Inline Viscometers. For more information: www.promix-solutions.com.

Note to editors (not for publication)

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