



A Guide to the History & Manufacturing of **Artificial Grass**



History of Artificial Grass

Artificial grass was initially created in the early 1960's, however it first gained substantial attention in 1966, when it was installed in the year-old Astrodome - America's first indoor, major-league baseball stadium in Houston, Texas. The state-of-the-art venue had initially attempted to use natural grass, however ground conditions and repeated use, together with lack of sunlight from the semi-transparent Lucite ceiling panels, meant that the grass quickly died. As a temporary measure the dead grass and dirt were painted green!

A team of researchers working on behalf of the Ford foundation had just created the first notable artificial turf and thankfully it proved perfect for the job. The team was run by David Chaney, Head of Research at the textile company Chemstrand, working alongside Research Triangle Park. The specific product used had a very short pile and was initially marketed as "ChemGrass", developed by Monsanto, but quickly became known as and re-branded to 'AstroTurf' due to its association with the innovative sporting venue; this term since then became a generic trademark for any artificial grass throughout the late 20th century.

To this day, many people innocently refer to artificial grass as "AstroTurf". In simple terms Astro Turf is just a brand of Artificial Grass. Similar to people referring to a vacuum cleaner as a Hoover; Hoover were the first to bring that product to the mass market.

The use of artificial turf and similar surfaces became widespread in the U.S. and Canada in the early 1970s, installed in both indoor and outdoor stadiums, used for baseball and American football, and continues to this day in sporting venues around the world.

The term Artificial Turf is generally used when synthetic grass is utilised within a sports environment, whereas the term Artificial Grass being used when synthetic grass is used in a more domestic environment. The synthetic surface in each case are basically the same, but each specific use takes the underlying technology & modifies its characteristics to best suit its intended use. Artificial turf used in sporting environments tends to be a lot more durable, less aesthetic and less dense to allow for differing crumbs and infill's to make up the rest of its composition (this technology is now described as 3G or third generation). Whereas artificial grass for domestic use tends to focus on the aesthetic to replicate the appearance of natural grass. While still being more durable than natural grass, artificial grass is more suited to the domestic garden and outdoor environment.

Since the early 1990s, the use of synthetic grass has moved rapidly beyond sports fields to residential and commercial landscaping and has now been widely accepted. This trend has been driven by the dramatic improvement in the quality and variety of available yarns, advances in technology, the reduced cost of maintenance and care compared to natural grass, and the many other benefits it offers.

As one of the leading suppliers of artificial grass products, we have produced this document to explain the benefits of artificial grass, why it is the best choice for your landscaping project and how to install and maintain your artificial grass, to create a safe outdoor environment, all year round.

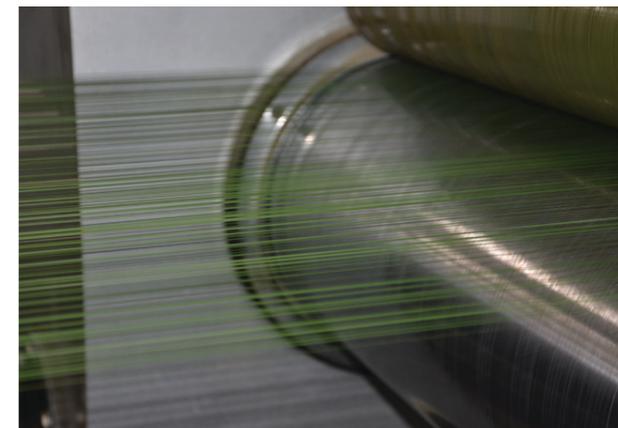
Manufacture of Artificial Grass

In simple terms artificial grass is an outdoor carpet that is manufactured to simulate the look & feel of natural grass. The process of making artificial grass follows these simple steps:

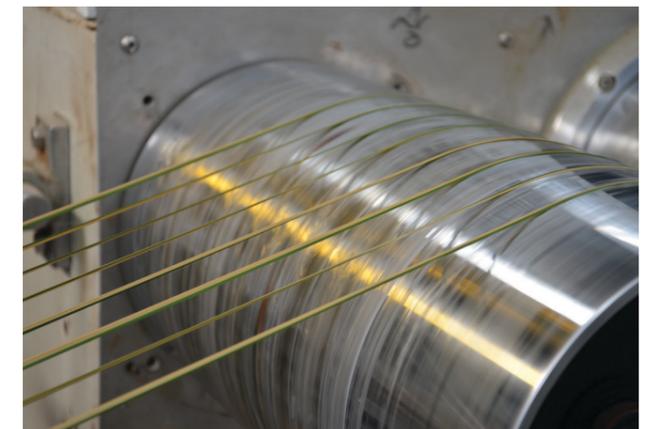
Step 1 - Yarn Extrusion

Artificial grass is made from long strands of synthetic fibres called yarn, produced from two different types of polymers: polyethylene and propylene.

Firstly, the resin pellets are melted down, in a hopper machine, then colours and chemicals are applied, to provide its signature green shade, with full UV protection. As these features are built-in to the turf; they do not fade or wash away over time. This mix is poured into a large steel mixture that stirs the liquid until it has thickened. The liquid mixture is then placed through an extruder, under high pressure and temperature, where it is moulded into long thin fibres, which mimic real blades of grass.



The formed strands are then put onto a carding machine and rotated onto a loose rope. The loose rope is then woven into a tighter yarn, which is set through being heated. This process of melting the resins to create the yarn is called extrusion.



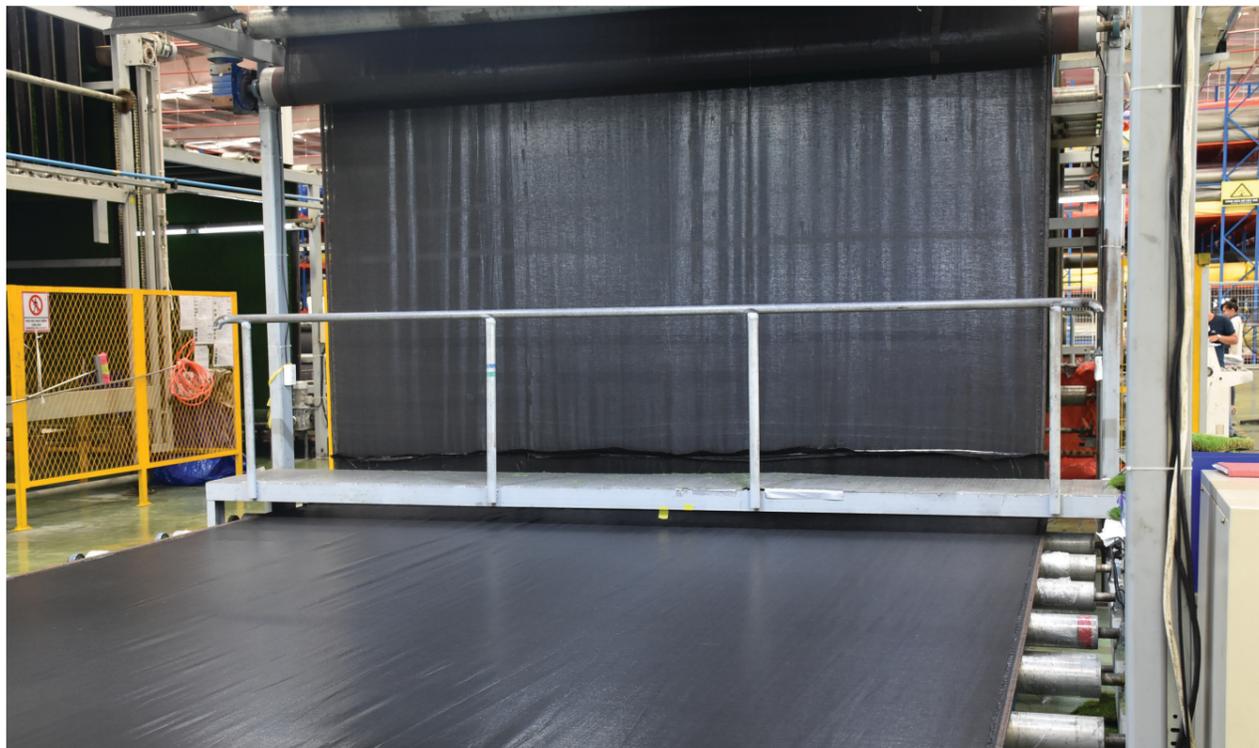
Step 2 - Tufting

Bobbins of yarn go into a creel and from the creel, each individual end of yarn goes into a tube and through a series of rollers, designed to make the tension equal across the whole creel. These large spools of yarn are then fed through a tufting machine, where a series of needles pierce the backing and feed the yarn into the loop. At the bottom of the stroke the needles are met by what is known as the hook. The yarn wraps around the hook and is cut by a blade forming a tuft, before returning to the top position to start again. This continuous process turns the yarn into a carpet of artificial grass.



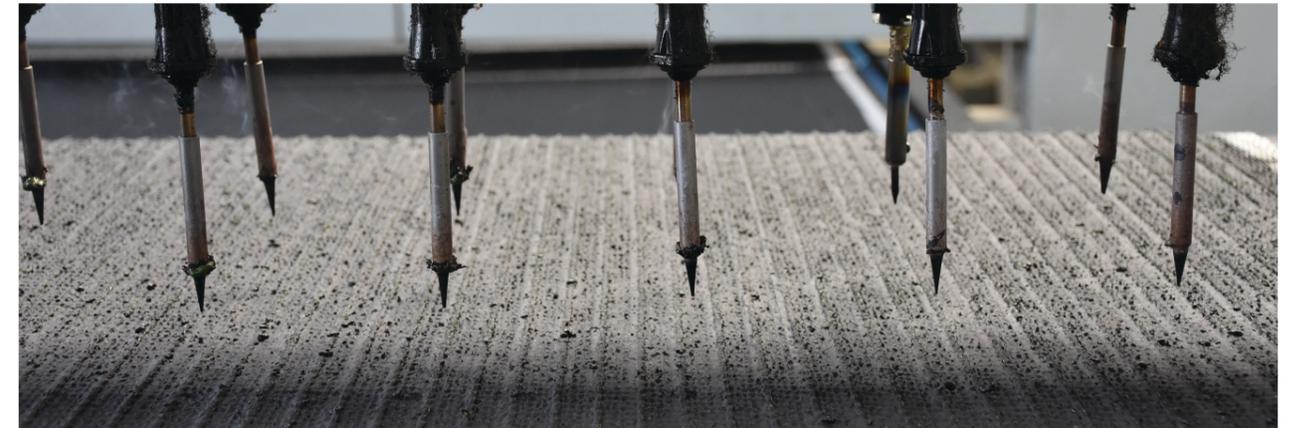
Step 3 - Coating

The tufted artificial grass is threaded through the backing line and a coating of latex is applied to the underside of the backing. The carpet is then fed through a drying oven which cures the latex. This prevents any tufts from falling out.



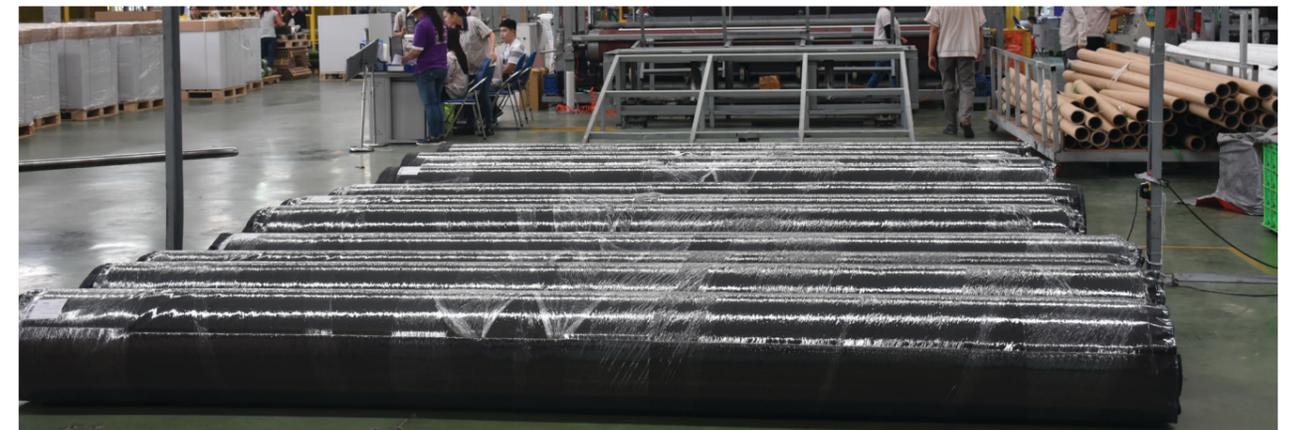
Step 4 - Perforation

Once the latex has dried, drainage holes are punched into the backing, to meet industry standards. This allows the rain water to drain through the surface and into the ground below. It is these perforations that prevent the build-up of surface water on artificial grass.



Step 5 - Packaging

Finally, the artificial grass goes through an inspection table and onto a rolling system, where they are cut into 25m rolls, rolled around a centre tube and packaged and ready for storage or transportation.



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