

Static Dissipative Turf

Static dissipative synthetic turf is a recent development. The need came about because of static shock occurring on recreational park installations. Static shock is known to occur in other types of installations as well, such as on both indoor and outdoor athletic fields. While it is known that static shock occurs on synthetic surfaces such as synthetic turf, carpet and resilient flooring, it has become an issue on playgrounds, due in large part to the playground equipment.

Antistatic turf is designed with the ability to resist the tendency to produce annoying static electric shocks in situations where friction builds up static. Typically this occurs when the static charge is in excess of 3.5 kV, the human sensitivity threshold. Not only does it resist the tendency to produce electric shocks, it is able to dissipate static electricity that is built up on equipment.

In carpet this behavior is highly dependent on humidity. High humidity environments are less prone to produce static shock than low humidity environments. Interestingly humidity does not seem to play as important a role in synthetic turf. Static build up appears in low as well as high humidity environments. The difference between carpet and turf is likely due to the different materials of construction. Nonetheless the problem and the solution are similar.

Prevention of static shock in flooring is well developed and has resulted in two types of approaches, topical antistat treatment and the addition of an external antistat.

Synthetic turf has taken a similar approach to carpet and has pursued these two approaches along with a third that comes from the packaging industry.

1. Topical antistat
2. Internal antistat
3. External antistatic – trade name XStatic[™]

Approach	Effectiveness	Permanence
Topical Antistat	Moderately Effective	Not Permanent
Internal Antistat (IA)	Ineffective	Permanent
External Antistat (EA) (XStatic™)	Very Effective	Permanent

Each approach has advantages. Only one approach offers a permanent and effective solution.

Topical antistats are an economical and a moderately effective way to minimize static build-up. They are however not permanent and are easily removed over time with water such as would occur with rain. They can also be removed with foot traffic.

The Internal Antistat approach is permanent. But the performance of these materials is marginal at best. This is because these antistats are not readily available to prevent static shock.

The XStatic™ External Antistat is a permanent and effective solution. This is a similar approach to that used in the carpet industry for well over 20 years. Due to patent restrictions however it is not widely used in the synthetic turf industry.

Synthetic turf with XStatic™ is quite effective. Once an initial wear-in period has been achieved the difference between turf with XStatic™ and turf without XStatic™ is dramatic. During the wear-in period in our tests both synthetic turf with and without XStatic™ did not produce static shock. That may not always be the case. Frequently the non-treated turf will show static issues immediately.

Unfortunately there are no accepted standards for static control in synthetic turf. And accepted test methods for carpet have been shown to be ineffective for synthetic turf. Empirical as well as historical data have been generated. The attached data have been presented in the subject patent application as demonstration of both the effectiveness and permanence of the XStatic™ approach.

Outdoor Antistatic Testing

Antistatic Yarn Content	Test I Immediately After Installation	Test II After Rinsing with Water	Test III After 2 months of Exposure to the Elements
None (Conventional Art)	No Shock	No Shock	Shock
XStatic™ Patent Example 1	No Shock	No Shock	No Shock
XStatic™ Patent Example 2	No Shock	No Shock	No Shock
XStatic™ Patent Example 3	No Shock	No Shock	No Shock
XStatic™ Patent Example 4	No Shock	No Shock	No Shock
XStatic™ Patent Example 5	No Shock	No Shock	No Shock

As an entity involved in testing and researching this issue, we can state that the XStatic™ technology used by ForeverLawn utilizes an external antistat as referenced above, and has been empirically proven to be both very effective and permanent.

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