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Re: Field Level Surface Temperature Reduction

Futrfill Thermo Plastic Elastomer (TPE) is a material that was developed to solve many of the performance and environmental problems that other synthetic and natural field surfaces encounter. During the extensive testing of our material, we were able to determine that one of the major benefits achieved by using Futrfill was the reduction of heat at the “near surface” level.

The major reasons for the lower surface temperatures of a synthetic field are due to the make-up of the product, the shape of the infill, and final color we have chosen for the material.

Futrfill is based off of TPE chemistry. TPE's have a very low thermal conductivity rating as well as a very low thermal retention coefficient. The low thermal conductivity retards the passing of heat from the upper layers heated by the direct sunlight to the layers of infill below them. The low thermal retention coefficient does not allow the heat that is in the material to build up for radiation out later. This means that the material that is heated on top will cool quickly, not pass to the layer below, and not hold heat to radiate out later, thereby creating a heat island on and around the surface.

The shape that we have chosen for the Futrfill also has an added benefit that we had not anticipated at first. When we settled on the semi-ovoid shape, our testing showed that the minimal contact points that we experienced between infill particles, allowed the flow of air through the infill layer, and allowed for a convective cooling with any kind of air flow around the surface. We say airflow because this is not as big of a factor if the wind is not blowing, but we did see quite a bit of air pass through when we had a breeze, which did aid in bringing the temperatures above the surface down below those of a non-uniform sized or shaped infill.

The last and possibly most important factor in the temperature reduction that can be achieved using Futrfill versus another type of infill is the color that we have chosen for the product. The darker the color of the infill is, the more light that it will absorb from the infrared, visible, and ultraviolet spectrum. This light is converted by the material and/or pigments from light to heat, thus raising the temperature of the field surface. The choice of a green color over some of the other naturally occurring colors of other synthetic or organic products means that Futrfill has less of the light energy which strikes the field converted into heat, thus helping lower the temperatures down at the surface.

Playing is hard work, everything we can do to make it more comfortable helps.

Cody Bates
President
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