



SYNLawn Product Advisory

SPA 2014-1



Product Advisory

Synthetic Grass and Reflective Surfaces

Today most of the synthetic grass being used in landscaping is made using soft polyethylene “PE” yarns. Although these soft “PE” yarns are long-lasting and produce a realistic natural appearance, there are some limitations with synthetic grass made with polyethylene yarns.

One limitation is the yarn’s low melting point in the range of 175° - 200° F. When sunlight reflects off a surface such as low E windows or any reflective surface, the concentrated sunlight can cause temperatures to quickly rise above the melting temperature of the polyethylene yarn. This will cause the yarn to shrink and even melt creating a hard surface on the face of the grass.

Unfortunately we don’t have control of these secondary reflective surfaces. Therefore shrinkage or melting from secondary reflective surfaces is not covered by our manufacturer’s warranty.

While cases of PE yarn shrinking or melting are rare, certain precautions can be taken to reduce this potential problem.

1. Visit the site between 10 a.m. and 1 p.m. when the sun is shining to see where the reflected energy is focused. Most reflective issues occur with windows and doors facing the south. Remember that reflected energy can reach distances over 200 feet. Also the direction of the reflective energy may change throughout the year.

2. Note potential reflective surfaces and determine if modifications or adjustments can be made to reflective surfaces, i.e. awning or outside screen on windows, non-reflective paint on other surfaces.

3. If it is impractical or impossible to reduce a secondary reflective surface, such as one from a neighboring property, a SYNLawN® grass using nylon yarn should be considered. Nylon has a much higher melting temperature ranging from 400° - 425° and offers great aesthetic and performance values.

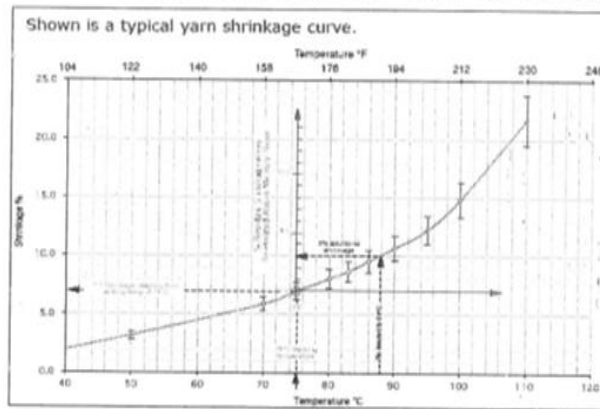
For additional information, please refer to the attaché Product Advisory from TenCate. TenCate is a world leader in outdoor fabrics.

Product advisory

marketing

Understanding of turf shrinkage

In the past couple of years the synthetic turf industry has significantly moved away from harsh polypropylene (PP) and polyamide (PA) fibres to the softer type of polyethylene (PE) fibres. This softer quality has been very well received and it produces excellent fields, but 'soft PEs' in particular have a lower melting point. The normal operating temperature of a field can easily reach 194°F, which is already well into the softening range of PE, although the fibres are able to withstand this temperature in the long term. Technical factors, like coating temperatures and storage, may have a negative impact. Even a few degrees can bring about a clearly visible effect. The use of the harsh type of PE fibre will produce an increase of between 41°F - 46°F, which may make a difference in some cases, but it is - like PE - still very sensitive.



Once an unsupported yarn is exposed to a temperature (T) greater than initiation set point, shrinkage will occur and the yarn memory will then be reset to the exposed temperature (T).

For example, the tufted carpet is exposed to 167°F during the secondary backing process. The resulting face yarn shrinkage is 7% (ref. curve above). The yarn memory is then reset to 167°F, meaning:

1. Any further temperature exposure below 167°F will result in 0% shrinkage.
2. Exposure to temperature above 167°F, will then result in additional shrinkage following the shrinkage curve but at the rate showing on the newly reset axis.
Re-heated to 190°F, the face yarn will shrink an additional 3% (ref. curve above) and new memory is reset to 190°F.

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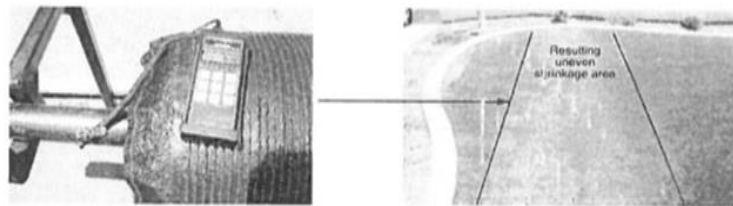
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A newly installed carpet will gradually adjust to the highest temperature in the region. This is a normal process, which will not affect either the performance or the appearance of the carpet, as long as the shrinkage adjustment occurs uniformly. However, localized or non-uniform heating of small areas will result in uneven pile height, which in turn will affect the appearance of the carpet.

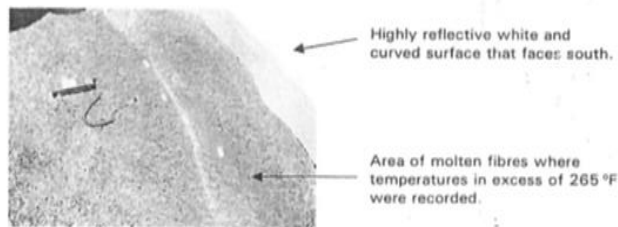
A few examples of localized heating to be avoided

1. During installation, the roll should not be left uncovered in direct sunlight. The black secondary backing will absorb heat, and the temperature of the top layer may be in excess of 194°F, resulting in severe, localized uneven shrinkage. White plastic wrapping must be used for outdoor storage of the roll or it should be stored in a shaded area.



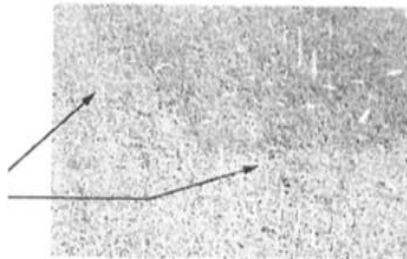
Temperature inside the top layer of a carpet roll left in the sun at 90°F ambient for a few hours.

2. When installing a carpet that faces south and that is exposed to sunlight between 11.30 a.m. and 2.00 p.m., care must be taken to ensure that sunlight that is reflected from highly reflective surfaces (windows, glass doors, smooth white surfaces, etc.) does not reach the turf, as a narrow band (10-25 cm) of reflected heat may reach temperatures in excess of the melting point of most plastics used in the synthetic turf industry.



3. Avoid leaving any heat-absorbent material on the turf during daylight hours. Clear or dark plastic sheeting, articles made of metal, garden hoses, pool floats or toys for example will absorb heat at a higher rate than the turf and may cause localized shrinkage as the temperature may exceed the turf stabilization temperature.

A clear plastic liner was laid on the turf for a few hours on a sunny day. Note the difference in pile height.



Advice

Please bear in mind the following when installing synthetic turf fields:

- Examine the proposed site carefully, paying attention to any possible reflective or refractive surfaces that may cause concentration of the sun's rays onto the proposed site. Discuss the condition of the site with the client;
- Sand infill helps to distribute and absorb more of the heat;
- Ensure that the client is fully informed about synthetic turf and its properties and especially the fact that it can be damaged by exposure to temperatures in excess of 167 °F.