



Namgrass versus Chinese grass

Goal: the goal of this research is to outline clear differences between the artificial turf carpets that are made of Chinese Grass components and Namgrass components.

Therefore the two artificial turf carpets are analyzed with the following methods:

1. Determination of **heavy metal** content (Standard: EN71 Part3 Safety of toy (by Satra))
2. Determination of **UV stability** (by ERCAT-University of Ghent)
3. **Resistance to heat** (IR lamp as source)

1. Determination of heavy metal content

Test method: ICP (Inductively Coupled Plasma)

We tested two artificial turfs (named sample A and B) on the requirements from the EN71-Part 3. Sample A is the tufted product from Namgrass. Sample B is the tufted product from China. The test consists of testing the migration of heavy metals.

	Chromium	Cadmium	Lead	Result
Requirement	< 60 mg / kg	<75 mg / kg	<90 mg / kg	-
Sample A (Namgrass)	8,1 mg / kg	Not detectible	65,5 mg / kg	Passed
Sample B (Chinese)	1553 mg / kg	0,1 mg / kg	6626 mg / kg	Failed

From the table it is concluded that the artificial turf sample A Namgrass complies with the requirements of EN71 Part 3. From the table it is also concluded that the artificial sample B Chinese grass does not comply with the requirements of EN71 Part 3.

2. Determination of UV stability

Both tufted samples are analyzed with the WOM (Weather-O- Meter), as well as UV-A as UV-B. With this test the UV-stability can be determined. This to see if the material degrades mechanically or the colors fade.

The results clearly show the color fading of the Chinese product. The yarns already start fading at 700 hours in the WOM. Normally the test is running for 3000 hrs. Similar results were seen in the UV-B test. The mechanical properties will also deteriorate when fading.

Tensile strength of individual filaments before and after UV:

	Tenacity (cN/tex)			Criterion >50%
	Before UV	After UV	After/before (%)	
Sample A (Namgrass)	16,5	15,6	94,5%	Passed
Sample B (Chinees)	14,0	0,3	2,3%	Failed

The requirement for tensile strength after ageing should be minimum 50% of the original tensile strength.

From the table it is concluded that the Namgrass sample meets the criteria of UV ageing.

From the table it is also concluded that the Chinese Grass does NOT meet the criteria of UV ageing.



Analysis **landscape grass**

3. Resistance to heat

Samples A and B were put under an IR lamp for ½ hour.

There is no significant difference before and after the heating on sample A (Namgrass).

The straight yarn of sample B (Chinese product) was completely melted after heating.

CONCLUSION

The goal of this research was to **analyze two leisure products**. One product from our Namgrass collection and one product from a Chinese producer. During the analysis each time the finished carpet was analyzed. The results show that the Chinese product does not comply with the requirements of the EN71 Part 3 in contrast to the Namgrass product.

In sample B the amount of Lead and Chromium exceeds more than 100 times the allowed limit . The results of the WOM showed that the Chinese product already started fading around 700 hours and the yarn loses a lot of tensile strength. The test normally takes (minimally) 3000 hours. The reason of the loss of tensile strength and fading of color on sample B (Chinese Grass) is that they put much less or even no UV stabilizer in the yarn compound.

The melting of the fiber in sample B (Chinese Grass) is caused by the use of recycled/blended yarns which are definitely more inferior than virgin materials.

The yarns used by Namgrass do not show any fading (even after 3000 hours) and keeps its original tensile strength because we work only with yarns with maximum UV stabilizers .In the Namgrass collection we don't work with inferior recycled materials .