

to Sortas Recycling B.V.  
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### Introduction

Sortas Recycling is a collector and processor of waste and residues, among which carpet fibre (see Figure 1). These are processed on specification by first shredding them and then sorting them, based on size and colour. This processing method makes them suitable as a stabilizer for equestrian surfaces. For this application, the carpet fibres will be mixed with silica sand on location, to improve the structure of the equestrian surface. This is a widely used method for stabilizing equestrian surface, both within and outside Europe. Additional to an improved riding experience for the horses, the carpet fibre also retains more moisture, leading to a better cohesion of the sand and a reduction of dust. To be



Figure 1 Carpet fibre (baled)

able to use the carpet fibres for this application, Sortas Recycling has requested an end-of-waste status for the carpet fibres. This would imply that the carpet fibres, which were originally offcuts from carpet production, can now be regarded as a product: Sortas Equine Fibres. For the end-of-waste application, it needs to be proven that the mentioned application has no harmful effects on human health or the environment. Therefore, analyses have been performed on the composition and leaching effects of the carpet fibres. The results of these analyses are published in Ingenia report 2058781-RAP-0001-01, which is available upon request. This memo provides a brief summary of these results and conclusions.

### Assessment framework

Although there is no unambiguous assessment framework for the carpet fibres, there is a duty to care for the soil, surface and/or groundwater. Furthermore, there is an assessment framework for the applied sand, namely the Soil quality regulation<sup>1</sup>. It was therefore assumed that the resulting mix of carpet fibres and sand can be regarded as a building material.

Within the Soil quality regulation, a differentiation is made between three types of building materials:

- Moulded building materials
- Non-moulded building materials without IBC-measures
- Non-moulded building materials with IBC-measures, the IBC-building materials<sup>2</sup>

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<sup>1</sup> In Dutch: Regeling bodemkwaliteit, from 13 december 2007, derived from: <https://wetten.overheid.nl/BWBR0023085/2020-06-09>

<sup>2</sup> IBC-building materials are non-moulded building materials, which can only be used with isolation, management, and control measures (in Dutch: Isolatie-, Beheers-, en Controle (IBC) maatregelen). Without these measures, application of these materials could potentially lead to increased emissions to the environment.

An equestrian surface consists of two main layers: A draining bottom layer and a stabilizing top layer. This is schematically displayed in Figure 2. The draining bottom layer can be regarded as an IBC-measure, as this is a similar measure as the one used for artificial grass pitches with granulated rubber for stabilization. This implies that the top layer, consisting of a mixture of sand and carpet fibre, can be regarded as an IBC-building material. The maximum permitted values for both emission and composition of these building materials are incorporated in Appendix A (Bijlage A) of the Soil quality regulation. These values have been used to assess the analysis results of the carpet fibres.

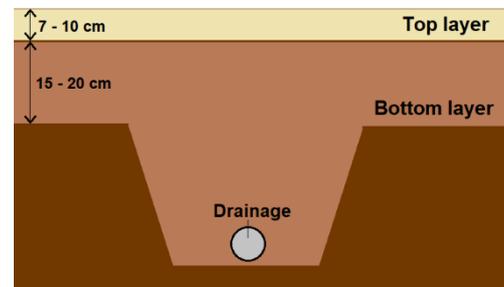


Figure 2 Schematic structure of equestrian surface

### Analysis results

Chemical analyses have been performed on both the composition of the carpet fibre, on a dry matter basis, and the leaching effects of hazardous substances. To test the leaching effects, the carpet fibres are exposed to water for a set amount of time (to test the influence of e.g. rainwater), after which the used water will be analysed on a large number of hazardous substances. In this way it can be determined if any hazardous substances, e.g. heavy metals, can leach from the carpet fibres and spread in the soil.

The analysis of the composition of the carpet fibres, has shown that all levels of possible hazardous substances are well below the maximum permitted values from Appendix A of the Soil quality regulation. The leaching analysis has also shown that the leaching of all analysed hazardous substances is very low and always well below the maximum permitted value.

### Conclusion

Carpet fibres can safely be applied as stabilizer in equestrian surfaces, without dangers for human health or the environment. The expected lifetime of carpet fibres for this application is 20 years. After the carpet fibres are no longer effective for the application, they should be removed and disposed of correctly. In the Netherlands an inspection report is needed for each new application of the used sand, even if the mixture of sand and carpet fibres will be used for another equestrian surface, as described in the Soil quality regulation. For other countries it is also advised to assess the quality and composition of the materials, prior to removal, replacement, or alternative applications.