

## RESEARCH REPORT - LABORATORY

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PROJECT	: foam layer "Re-bounce, uni H 82.12 – 12 mm"
PURPOSE RESEARCH	: suitability foam layer for use in sports constructions
PRINCIPAL	: Recticel N.V. contact: Mr. P. Tytgat
EXECUTION	: ISA Sport Innovation & Quality Project Manager: Mr. J.G. Kieft
RESEARCH DESCRIPTION	: Page 2
RESEARCH RESULTS	: Pages 3 - 5

### CONCLUSION

Based on the material characteristics the foam layer "Re-bounce, uni H 82.12 – 12 mm" is suitable for use in sports constructions.

A sports functional research has to be performed for each individual construction in which the foam is applied to determine the sports functional characteristics of the system.

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## RESEARCH DESCRIPTION

Recticel N.V. asked ISA Sport to perform the material research on a foam layer "Re-bounce, uni H 82.12 – 12 mm" for use in sports constructions.

The foam layer has been tested before under product name "Re-bounce uni F 82.16", reference ISA Sport project number 25080104.

In order to identify the foam layer the following characteristics are investigated:

- weight;
- thickness;
- uniformity;
- stability;
- tensile strength;
- shock Absorption;
- vertical deformation.

Relevant characteristics are copied from project number 25080104.

This research is restricted to measurements on the material characteristics of the foam layer. Other characteristics like sports functional characteristics can only be measured after application in a sports construction. The results of this research therefore give an indication of the suitability.

The results of the research are given on the next page.

## MATERIAL RESEARCH

### Description foam layer

The foam layer "Re-bounce, uni H 82.12 – 12 mm" consists of various foam particles with an open cell structure. A photograph of the material is given in figure 1.

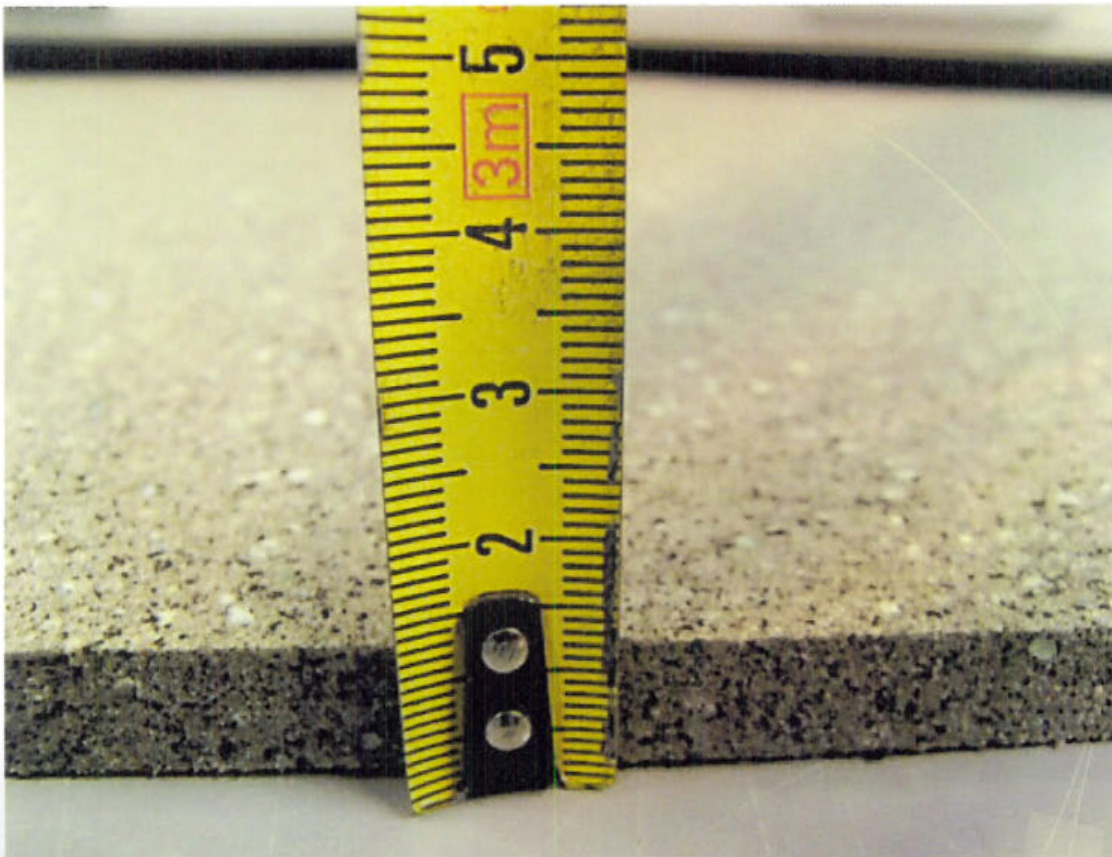


Figure 1: Re-bounce, uni H 82.12 – 12 mm.

## Test results

In table 1 below the results of the material research are summarized.

Table 1: summary of the results of the material research.

Characteristics	Results
Color	grey
Weight	3.1 kg/m <sup>2</sup>
Thickness	12 mm
Water permeability	1,1 l/min <sup>1)</sup>
Stability	
0.10 N/mm <sup>2</sup>	1.5 mm
0.25 N/mm <sup>2</sup>	4.2 mm
0.50 N/mm <sup>2</sup>	6.2 mm
Creep (0.5 N/mm <sup>2</sup> )	1.3·10 <sup>-3</sup> mm/s <sup>1)</sup>
Uniformity	uniform
Tensile strength	0.28 MPa
Coefficient of expansion	1.0·10 <sup>-4</sup> °C <sup>-1</sup> <sup>1)</sup>
Water absorption	272% <sup>1)</sup>
Resistance to continuous load	
Static deformation	10% <sup>1)</sup>
Dynamic deformation	14% <sup>1)</sup>
Dimensional stability Δl	1.0 % <sup>1)</sup>
Shock absorption on concrete	49%
Vertical deformation	4.5 mm

<sup>1)</sup>: Results are copied from report 25080104

The value for the water absorption of the foam is high due to the open cell structure.

The value for the dimensional stability of the foam is high. Under influence of water and temperature a significant change in length can appear. When used in a construction the effects of the dimensional stability of the foam can vary due to the overlaying top layer. Similar Recticel N.V. material has been applied in several sports constructions and has not given significant problems. When the installation recommendations of the supplier are followed, no risks are to be expected.

Based on the material characteristics the foam layer "Re-bounce, uni H 82.12 – 12 mm" is suitable for use in sports constructions.

A sports functional research has to be performed for each individual construction in which the foam is applied to determine the sports functional characteristics of the system.