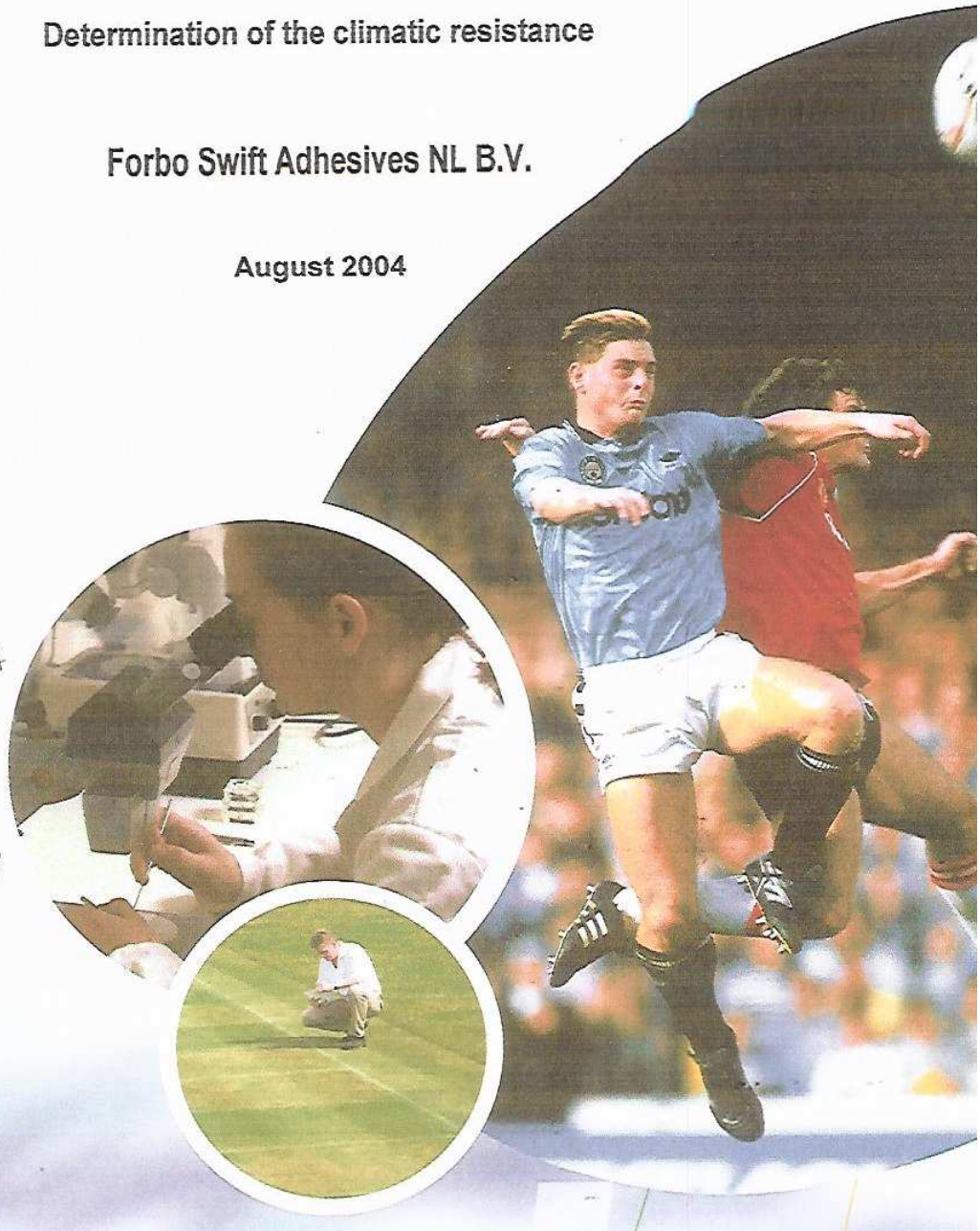
Instituut voor
Sportaccommodaties

RESEARCH REPORT

Determination of the climatic resistance

Forbo Swift Adhesives NL B.V.

August 2004



NOC*NSF

RESEARCH REPORT - LABORATORY

PROJECT	:	Glued connection on artificial turf using seaming-tape "Forbo-KR-Nahtband F" manufactured by Caplast for Forbo and adhesive "2-K-Kunstrasenkleber 149" from Forbo
RESEARCH PURPOSE	:	Determination of the climatic resistance according to the standard prEN 14836
EXECUTION	:	ISA Sport Contact person: Mrs. N.P.W. Salzmann
RESEARCH DESCRIPTION	:	Page 2
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CONCLUSION

The glued connection is suitable as joint connection in artificial turf football constructions.

August 2004

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DESCRIPTION RESEARCH

ISA Sport was provided with an artificial turf sample with a joint connection. The joint connection is built up from the following materials:

- Artificial turf;
- Seaming-tape: Forbo-KR-Nahtband F manufactured by Caplast for Forbo;
- Adhesive: 2-K-Kunstrasenkleber 149 from Forbo.

The effect of a climatic simulation (according to prEN 14836) on the joint strength of the sample is determined. The climatic simulation includes UV light, moisture and temperature-changes and simulates a period of use of five years in practice.

The joint strength of the sample is determined according to the standard NEN-EN 12228 (October 2002). This standard describes to use a 100-mm wide sample. In the present research 50-mm wide samples are used. This does not influence the measurement results.
For the determination of the joint strength, an increasing tensile force is applied perpendicular to the joint until it breaks. The maximum force F_{max} applied is the measure for the joint strength.

The following joint strength requirements are used for the judgement on the delivered sample:

- >2500 N/100 mm for rugby;
- >1500 N/100 mm for football;
- >1000 N/100 mm for other sports, i.e. tennis and hockey.

RESEARCH RESULTS

Table 1 gives an overview of the mean value for the F_{max} and the resulting calculated joint strength of the sample before and after climatic simulation. The individual test results (F_{max}) are listed hereafter in table 2.

Table 1: mean F_{max} and joint strength for the examined sample

Before climatic simulation		After climatic simulation	
F_{max} (N)	Joint strength (N/100mm)	F_{max} (N)	Joint strength (N/100mm)
871	1742	773 [1)]	1546 [1)]

Remark [1)]:
Three of the five measured samples after climatic simulation broke at the backing of the turf.

From the research result it is concluded that the sample meets the requirements for football (>1500 N/100 mm).

Table 2: individual test results F_{max}

Measurement	F_{max} (N) Before climatic simulation	F_{max} (N) After climatic simulation
1	858	815
2	864	718 *
3	885	751
4	870	714 *
5	876	867 *
mean	871	773

Remark *:
The joint strength is higher than the tensile strength of the artificial turf. The backing of the artificial turf broke at the reported force.