INSTITUT FÜR SPORTBODENTECHNIK

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Accredited by
DIN CERTCO and IAAF

Comments on prEN 14810

"Determination of Resistance to Spikes"

In October 2003, the new draft standard prEN 14810 "Determination of Spike Resistance" was published. The IST has built this device and tried the test. These are our results:

1. Specification Formalities

- specification of the horizontal axis is incomplete: what about the relative mobility of the individual spike wheels ?
- specification of the spikes used is incomplete: shape and radius of spike tip ?
- specification of the sampling locations for the tensile strength tests are missing

2. Test Procedure

The device is shown on in picture 1 (see attachment). During the trial testing it was observed that the spikes only made a partial indentation in the surface. This means that the wheel surface is not contacting the test surface. In practical use the spikes of the athletes shoes penetrate the surface so that the soles of the shoes are in close contact to the surface. The reason for this lack of penetration is that 10kg on 10 spikes is an inadequate force under which to perform the test. The reality is that 4 spikes are charged with at least 800N to 1600N which is 20 to 40 times the force specified for prEN device. Without a realistic stress the attempt at performance validation is worthless.
Without specified locations for taking the tensile samples, uncertainty is created. Even if this is overcome, it is not the only problem as the sample cutter has a length of 150mm and a width of 40mm while the spike treated area has a diameter of 140mm. Additionally, the tensile strength can be influenced by submitting thick samples which leave a greater part of the sample depth unaffected by the spike penetration resulting in higher tensile strength results. These areas need to be addressed.

3. Proposal

If a spikes test is required, we propose a modified DIN 18035-6 test, the design of which is shown in pictures 2 and 3. The requirements of the device are:

- diameter of the spike wheel (260mm average)
- positioning of spikes on wheel surface and shape of spikes acc. Figure 8 of DIN 18035-6:1992
- braking moment: 10Nm
- load of wheel: 0.35 kN

The device also provides a method to change/move the local spike 'hits' (controlled at a special 'control area' :see picture 3). The wheel is driven by an electrical motor located in the center of the device table.

The load per spike is a more realistic 175N

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If additional information is needed on this proposal, the IST would be pleased to provide it.

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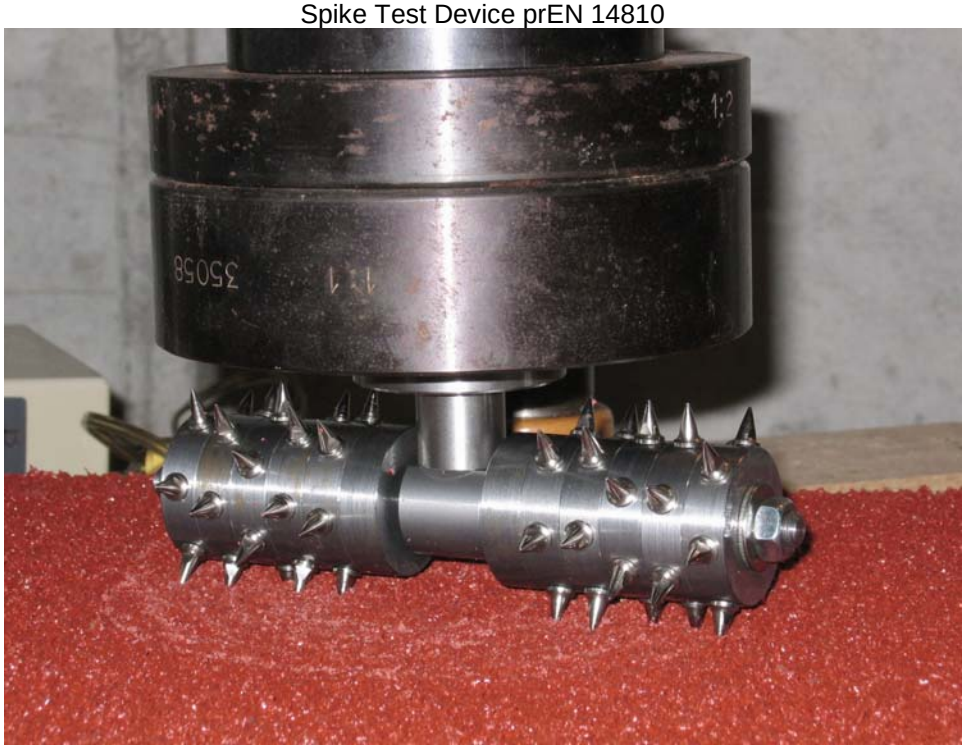
Spike Test Device prEN 14810



Spike Test Device dIN 18035-6/IST

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