LISPORT TESTER :

Presentation by Dominique Boisnard from LABOSPORT.

In the CEN meeting of WG6 (synthetic turf) held in November 1993, in Steinhagen, Germany, the Balsam company presented the Linear tester apparatus to assess the resistance to spikes and to studs of synthetic surfaces.
The first apparatus based on the Lisson test from the textile industry, was found interesting by the experts as a new way to control wear resistance of synthetic turfs.

After the disappearing of the Balsam company, Labosport decided to create a simpler apparatus (for example to move from spikes to studs) and to use a larger sample in order to assess the performance characteristics after the abrasion test. The idea to use a chain to do the main movement of the roll was decided.

We began the construction of an apparatus with a grant of the municipality of Paris and began a study to compare the characteristics after the Lisport test with the synthetic turfs installed in Paris.
The target was to simulate the aspect of fibers (ex : fibrillation) and also compaction.

We used one roll with around 100 studs and two movements : longitudinal and transversal. The lateral movement was to increase the shear strength on the turf.
Unfortunately , we had two problems : no huge fibrillation and the studs used the same areas involving no uniformity of the abrasion. The compaction was very good and correlated to the sites.

So we added a second roll with an electrical device to slide one of the two rolls. The improvement was good but the mechanical part, because of its own wear, involved a lack of reproducibility.

Two years later, we manufactured a longer and larger apparatus which could abrade a sample of one metre by 0,40 metre. The weight of the rolls were increased up to 30 kg, with 145 studs each. A chain was added between the two rolls with gables of different sizes to give a sliding movement of 40 %.

We did a study showing that the lateral movement increases the horizontal force of 20 %.

After a meeting with Franklin Versteeg from ISA, we decided to use the same places of the studs on the rolls as they are on their machine to simulate the resistance to studs on outdoor natural pitches.

To avoid the problem of the homogeneity of the abrasion and compaction we added a fourth movement at the end of each cycle : random movement of the rolls by the inertia of the masses.

In the mean time we presented the apparatus in a WG6 meeting in Paris in October 1998.
We also presented, in the Majorca seminar, July, 1999, the result of the correlation done in Paris between the LISPORT® tester (registered name given by contraction of Lisson and Labosport) and the sites control.

The research on sand filled turfs indicated a physical ageing of 5/6 years with the Lisport (2000 cycles).

The acceptation of the system for a European standard was given in a WG6 meeting in Brussels.

After this brief history of the apparatus, I will show a video of the Lisport and results on different synthetic turfs.
Note that we also used it on natural turfs and the results were very spectacular.

As a conclusion, I should add that we have just finished the same research to compare the results in laboratory and on sites with the new generation of turf (with rubber).
The main assessed parameters were shock absorption and deformation. On these turfs we use 5000 cycles because the characteristics could change between 2000 and 5000 of cycles. The procedure takes into consideration a good maintenance (synthetic granules are put back in the sample).

A broad correlation gives the same conclusion as sand filled system : an average of 4/5 years with a good maintenance.

Round robin tests under the CEN committee are in progress between different apparatus and different laboratories.