

DIN Surface Friction and Rolling Load

Abstract: This document outlines ASET Services' position not to include the rolling load or surface friction properties as outlined in the DIN 18032 Part II (standard 1991, pre-standard 2001) in suitability reports of sports surface systems with wood playing surfaces. The rolling load portion of the DIN standard does not ensure that a sports surface system is compatible with common loads required in the North American marketplace such as portable backstops and large portable bleachers. Local environmental regulations and installer preferences result in a wide variety of polyurethane finishes and application techniques. These differences make including surface friction properties in 'general' suitability reports, issued to sports surface manufacturers, impractical.

Introduction:

The DIN (Deutsches Institut für Normung) standard 18032 Part II is commonly understood throughout the world as a method of quantitatively expressing the performance characteristics of sports surface systems. The standard outlines a variety of tests for sports surface systems, with the most common being ball rebound, force reduction, vertical deflection, area indentation, surface friction and rolling load. The following discussion pertains to the application of the surface friction and rolling load parameters within the North American marketplace.

Rolling Load

DIN 18032 Part II calls for a load of approximately 330 lbs to be applied to the playing surface through a single steel wheel. While this loading may encompass the loading levels in Germany or Europe, North American floors are often required to support much heavier loads. Portable backstops, and large bleacher racks (10-15 rows and larger) would typically produce much higher loads in a concentrated area.

Most installations will call for design modifications in areas that will undergo these high loads. These modifications may include, solid blocking, limited travel stop-blocking, increasing the frequency of resilient pads and structural sleepers. The performance outlined in the suitability report only reflects the performance of the construction as described. Any change to that construction, even the addition of limited travel stop-blocking, may result in changes to the performance such that the system no longer meets other requirements of the DIN standard. It is for these reasons that ASET Services has concluded that Rolling Load performance, as outlined in DIN 18032 Part II (1991 and 2001) should not be included in suitability reports.

Friction Coefficient

Surface friction is predominantly controlled by the top layer of the urethane finish used on sports surface systems with wooden playing surfaces. There are a variety of reasons why placing a 'general' surface friction property in a suitability report is not appropriate for the North American market.

The dominant reason for this position is that local environmental regulations often prohibit the use of certain finishes. These regulations typically specify the level of VOC's (Volatile Organic Compounds) that can be present within the liquid finish compound. Some states have very strong regulations that require the liquid finish contain no VOC's. Other states have reduced the levels of VOC's allowed.

While these regulations promote installers to use finishes with no or low levels of VOC's, installers have a general consensus that these products are not as durable as the traditional finishes. Therefore, when regulations are not in place, traditional oil-base polyurethane finishes are the norm. Water-based polyurethane finishes are only common where environmental regulations have been developed.

The uncertainty associated with the selection of the finish material makes the development of a 'general' suitability report that is applicable throughout all of North America impossible. Most finish manufacturers have their products tested, and can provide the appropriate surface friction performance results for individual installations.