

Artificial sports surfaces —

Part 1: Classification and general introduction

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Textiles and Clothing Standards Policy Committee (TCM/-) to Technical Committee TCM/14, upon which the following bodies were represented:

- Birmingham City
- British Amateur Athletic Board
- British Amateur Weight Lifters' Association
- British Association of Advisers and Lecturers in Physical Education
- British Leather Confederation
- British Sports and Allied Industries Federation
- Central Council of Physical Recreation
- City of Glasgow
- Consumer Policy Committee of BSI
- Department of Education and Science
- Department of the Environment, Building Research Establishment
- Department of Trade and Industry (Consumer Affairs Division)
- English Basketball Association
- Home Office
- Institute of Trading Standards Administration
- Ministry of Defence
- Physical Education Association of Great Britain and Northern Ireland
- Recreation and Leisure Trade Association
- Sports Council

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Association of District Councils
- British Floor Covering Manufacturers' Association
- British Plastics Federation
- Institute of Leisure & Amenity Management
- RAPRA Technology Ltd.
- Sports Turf Research Institute
- Textile Institute
- Textile Research Council

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Foreword

This Part of BS 7044 has been prepared under the direction of the Textiles and Clothing Standards Policy Committee and forms Part 1 of a comprehensive British Standard on artificial sports surfaces.

It is based on Part 1 of the Sports Council Specification for Artificial Sports Surfaces, but has been significantly re-arranged and revised. In particular, all test methods and requirements for surfaces have been omitted and will be included in subsequent Parts of BS 7044.

Many sports were developed on and are still played on natural surfaces, notably turf. However, it has always been necessary to use artificial surfaces for sports played indoors and this increasingly includes indoor versions of sports normally played outdoors. Economic and climatic factors have also made it desirable in many cases for artificial surfaces to be used in place of natural surfaces outdoors, for example where the maintenance is prohibitive or where more intensive use is required than can be sustained by natural turf.

A large variety of artificial surfaces has been developed and found to satisfy the economic and convenience criteria demanded by particular sports and also to provide satisfactory, or in some cases superior, playing characteristics. However, the variety of surfaces available and the lack of standardization of performance data has made the choice of a surface by a potential purchaser for a particular application very difficult. This is especially so as regards the playing performance of the surface.

BS 7044 has been developed with the cooperation of the equipment manufacturers and governing bodies of sport to standardize test methods, to specify requirements for durability, playing performance and safety and to give guidance on the characteristics of artificial surfaces.

BS 7044 is primarily intended to be of interest to local and education authorities, universities, schools and sports clubs to guide them when purchasing a sports surface. The performance requirements given in BS 7044 reflect mainly recreational, educational and club standard needs but may also be satisfactory for top level competition.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 7044 gives a classification of artificial sports surfaces for the purpose of setting performance requirements. Walls, loose particulate surfaces and surfaces designed for motor sports use are not covered in this standard.

NOTE 1 Background information and guidance are given in appendices which cover the characteristics of the various types of artificial surface, considerations in selecting a surface and the parameters which require measurement.

NOTE 2 The titles of publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 7044, the following definitions apply.

2.1

natural sports surface

a sports surface formed by the preparation of an area of land including surfaces formed with vegetation or solely of loose particulate mineral layers, ice or snow

2.2

artificial sports surface

a sports surface formed by a layer or layers of processed and formed material laid so as to produce an essentially continuous and bound-together surface. The surface may also include loose particulate material essentially retained by the formed material

NOTE 1 It is not possible to make an absolute distinction between what is a natural and what is an artificial surface. It is obvious that turf and water are natural and that polyurethane sheet is synthetic but to classify such materials as cinders or wood is more difficult. An essentially continuous surface produced by a manufacturing process from a natural material (for example wood boards) is considered artificial.

NOTE 2 The term "synthetic surface" is sometimes used to describe a surface manufactured from a material such as a plastic to distinguish it from a surface constructed from a natural material such as wood.

2.3

polymeric surface

a sports surface formed of plastics, rubber and textile materials collectively

2.4

substrate

the layer or layers of material below the top playing layer, which may be an essential component of the surface, and may considerably affect its performance

2.5

resilience

the ratio of energy returned after impact to the energy put in

NOTE 1 For example, the rebound height of a ball divided by the height from which it was dropped.

NOTE 2 Resilience has no particular connection with stiffness.

2.6

stiffness

The ratio of applied force to deflection, that is often called softness or hardness

NOTE Stiffness is not a constant but may vary with the rate of application of the force and the magnitude of the force.

3 Classification of sports surfaces

In this standard, surfaces are classified by intended use and performance characteristics and not by material or construction.

NOTE 1 A guide to the principal types of material and construction used is given in Appendix A.

Two classes of principal intended use are described as follows:

- a) surfaces for general (multi-sport) use;
- b) surfaces for individual sports.

Each of these classes is further classified into the following:

- 1) surfaces for outdoor use;
- 2) surfaces for indoor use.

The surfaces for general use are also further classified into the following:

- i) medium duty;
- ii) heavy duty;
- iii) spike resistant.

The surfaces for individual sports may be further classified into intended level of use, for example international, national, county, club or recreational.

The designations of these classifications are given in Table 1.

Additionally, it is necessary for the purchaser to specify, in the case of outdoor surfaces, whether the playing layer (and the substrate) is to be permeable or non-permeable, if this requirement is not specified in the relevant Part of BS 7044.

Table 1 — Classification of surfaces

Surface	Designation
General use, medium duty, outdoors	MD/O
General use, medium duty, indoors	MD/I
General use, heavy duty, outdoors	HD/O
General use, heavy duty, indoors	HD/I
General use, spike resistant, outdoors	SR/O
General use, spike resistant, indoors	SR/I
Individual sport, outdoors	^a
Individual sport, indoors	^a
^a Example are Cricket/O/country and club, Cricket/I/school.	

Ideally, all sports activities should have the surface individually specified but economic pressures dictate that in many installations a number of sports have to be played in the same space and often on the same surface. For this reason, general classes have been defined in this standard.

In selecting a surface to be used for a number of sports, it should be recognized that no surface meeting the requirements of any of the general classes can be equally satisfactory for all the sports which could be played on it.

Even if a surface appears satisfactory for a given sport as regards playing characteristics, it may not be satisfactory in terms of safety.

Where more than one sport has to be played on a single surface, there has inevitably to be a compromise which purchasers will have to make in the light of their objectives for the use of the space in which the surface is to be laid.

NOTE 2 Guidance on selecting a surface is given in Appendix B.

4 Substrates

The top layers will be laid onto some form of substrate or basework and this substrate will influence, sometimes to a large degree, the performance of the surface. This is the case, for instance, when considering the resilience of a thin, soft surface.

Where it may affect the result, it is essential that performance tests to assess compliance with the requirements for any of the classes defined in this standard are carried out with the top layers backed by the substrate to be used in the final installation.

NOTE Requirements for substrates will be given in another Part of BS 7044.

5 Performance parameters

Performance requirements for the classes of surface defined in clause 3 will be given in BS 7044-4 for surfaces for general (multi-sport) use and in subsequent Parts BS 7044 for surfaces for individual sports.

NOTE The relevance of many of the performance parameters is discussed in Appendix C.