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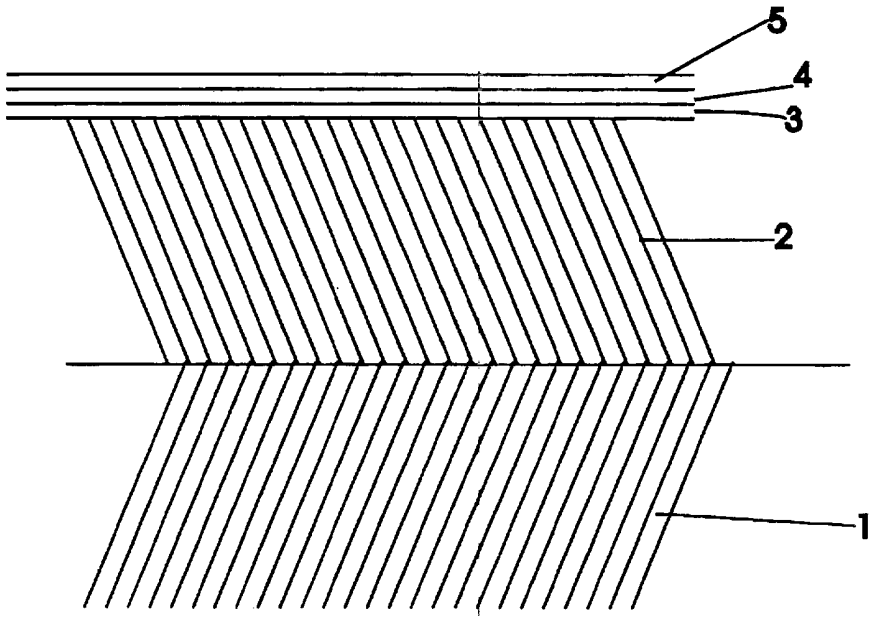
(54) Abstract Title
Court surface

(57) A sports surface, especially for a tennis court, comprises a porous substrate 1 on which there is a porous rubber layer 2 on top of which is at least one layer of an acrylic composition 4, 5. The substrate layer is preferably a bituminous or tar derived material such as tarmac. The rubber layer is preferably made of rubber granules bonded together by a binder, e.g. a polyurethane binder. The rubber layer is typically 3-4 mm thick, and may have rubber granules in a lower section of particle size 1-3 mm and less than 1mm in an upper section. The rubber layer may be applied as by mixing the granules with a liquid binder and applying the liquid to the substrate or as a sheet and fixed to the substrate by an adhesive. The acrylic layer may be porous and textured. There may also be a binding layer 3, which may be applied as a curable resin, and the acrylic layer may be applied on top whilst the resin is curing.



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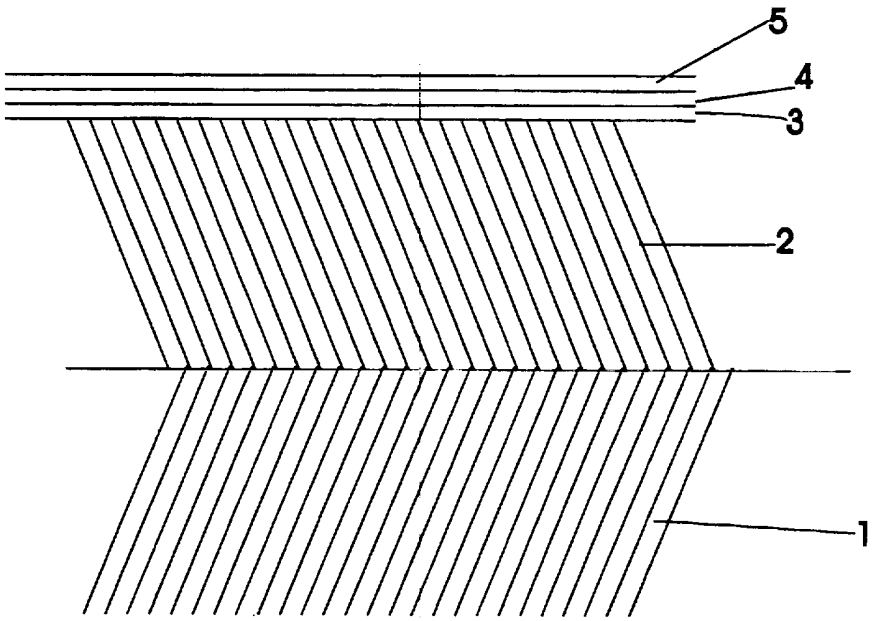
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Court Surface

The present invention relates to a surface suitable for use in playing sports and games.

Surfaces, which are used for playing games, such as tennis, can be made of a bituminous composition of the type sold under the trade name "Tarmac". This surface is hard wearing, is normally black and has been widely used for a long period of time.

For games such as tennis an "acrylic" surface can be used, this consists of a coating of an acrylic composition which can be applied by spray coating or by a wet application e.g. using a squeegee. A layer of the appropriate thickness and can be obtained in a range of colours.

This acrylic surface can be made porous so that surface water passes through the layer and does not lie on the surface. This enables the court to be played on when conditions are wet. Suitable surfaces are widely use and commercially available. These courts have a hard surface and players normally prefer a surface with some cushioning so as to reduce the likelihood of strain and impact injuries etc.

Acrylic surfaces are available which incorporate cushioning layers and these widely available. However these surfaces are non-porous and so there can be a problem with water retention in wet weather.

I have now devised a court surface with advantages over the present surfaces.

According to the invention there is provided a court surface which comprises a porous substrate on which there is a porous rubber shock layer on top of which is at least one layer of an acrylic composition.

The porous substrate is preferably made of a bituminous or tar derived material of the type currently used, as this substrate is not actually played on it need not be as hard wearing as surface tarmac layers.

The rubber shock layer is preferably made of rubber granules bonded together by a binder e.g. a polyurethane binder etc. The granule size is not critical and fine granules are preferred e.g. of less than 0.5 mm average size. In one embodiment the particles in the lower section are of a particle size of 1 to 3 mm and are smaller e.g. of less than 1mm e.g. 0.5 mm in the upper layer.

This layer can be of any thickness depending on the use, in general the thicker the layer the better the cushioning effect. Typically layers of 3 to 4 mm can be used.

The rubber can be any conventional rubber material and can be a natural or synthetic rubber and can contain conventional additives such as fillers etc. and can be treated to have the right properties. Such rubber materials are widely available in sheet form.

The rubber layer, which can be applied as a sheet of rubber, is fixed to the tarmac layer by means of an adhesive and can be glued over the whole surface or can be "dot glued".

The rubber layer can also be applied by mixing rubber granules with a liquid binder and applying the liquid to the substrate; the so called wet pore method.

The acrylic composition can be any of the conventionally used porous acrylic coatings used for sports courts such as tennis courts.

The top acrylic coat is preferably applied to the rubber layer using conventional methods e.g. spray coating or applied by a squeegee. Preferably there is a binding layer applied to the rubber coating, on top of which the acrylic layer is applied so that there is improved adhesion between the rubber layer and the acrylic layer. This binding layer can be a polyurethane layer applied as a curable resin e.g. a moisture cure polyurethane.

In a preferred embodiment of the invention the acrylic layer is preferably applied on top of the binding layer whilst the curable resin is not fully cured i.e. it is still tacky.

The acrylic layer is preferably a porous textured acrylic layer and at least one coat is applied, for many purposes two coats are suitable but more coats can be added as required.

The coating can be applied in situ on site by applying the layers as required and this particularly appropriate of the rubber layer is applied as a liquid and cured in place. This makes transportation etc. easier.

An embodiment of the invention is illustrated in the accompanying drawing.

In the drawing there is a porous tarmac layer (1) on which a layer formed of a sheet of rubber matting formed of rubber granules bound together by a binder; this layer is about 3.5 mm thick. The particles in the lower section are of a particle size of 1 to 3 mm and are smaller e.g. of less than 1mm e.g. 0.5 mm in the upper layer.

On top of layer (2) is applied a layer (3) of clear polyurethane moisture cure resin on top of which are sprayed layers of textured acrylic (4) and (5).

The rubber matting (2) is dot glued to the tarmac using a polyurethane glue.

The structure is permeable to water and combines the advantages of a porous textured acrylic surface and a cushioned surface.

Claims

1. A court surface which comprises a porous substrate on which there is a porous rubber shock layer on top of which is at least one layer of an acrylic composition.

2. A surface as claimed in claim 1 in which the porous substrate is made of a bituminous or tar derived material.

3. A surface as claimed in claim 1 or 2 in which the rubber shock layer is made of rubber granules bonded together by a binder.

4. A surface as claimed in claim 3 in which the granule size is from 1 to 3mm average diameter.

5. A surface as claimed in claim 3 or 4 in which in the rubber shock layer there in an upper section there are particles of granule size of less than 1mm.

6. A surface as claimed in claim 3, 4 or 5 in which the rubber shock layer is 3 to 4 mm thick.

7. A surface as claimed in claim 6 in which the rubber layer is applied as a sheet of rubber and is fixed to the substrate by means of an adhesive.

8. A surface as claimed in any one of the preceding claims in which the rubber layer is applied by mixing rubber granules with a liquid binder and applying the liquid to the substrate.

9. A surface as claimed in any one of the preceding claims in which there is a binding layer applied to the rubber coating on top of which is applied the acrylic layer.

10. A surface as claimed in claim 8 in which the binding layer is a polyurethane layer which is applied as a curable resin and the acrylic layer applied on top of the binding layer whilst the curable resin is not fully cured.

12. A surface as claimed in any one of the preceding claims in which the acrylic layer is a porous textured acrylic layer and there is at least one coat of the acrylic layer.

13. A court surface as hereinbefore described with reference to the drawing.

The Patent Office

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Application No: GB 0002387.9 6 **Examiner:** Peter Trickey
Claims searched: 1-13 **Date of search:** 3 May 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Other: Online: EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	WO 95/07398 A1	(B.V. Descol Kunststof Chemie) see entire document	1-3, 9
X	WO 88/06971 A1	(A.V. Syntec) Figure and line 17 page 9 to line 4 page 12	1-4, 7-9, 12
X	JP 54048927 A	(Mitsui Toatsu Chem) Figure and abstract	1-5, 8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.