

MAPESOIL 100 MAPESOIL 50

*PRODUCTS FOR PLAYING
SURFACES SUB-BASES*



MAPEI
SPORTS
SYSTEM
TECHNOLOGY

Mapesoil 100 / Mapesoil 50

MAPEI TECHNOLOGY FOR HORIZONTAL DRAINAGE OF SYNTHETIC GRASS PLAYING SURFACES

The performance and comfort properties required from a playing surface, which determine whether it is suitable for a specific sport, must also be met when it rains: this means that an efficient system to drain water from the playing surface must be included to guarantee the functionality of the pitch, even when weather conditions are unfavourable (such as heavy rain over a short period of time just before an event or match).

Since drainage is such an important feature, MAPEI research has developed an innovative system to create sub-bases with a horizontal drainage system, that is, a technical solution whereby the water flows away just below the turf surface: an impermeable drainage layer is interposed between the synthetic grass playing surface and the sub-base which enables rainwater and irrigation water to flow off horizontally. The water flows off from the centre of the playing area towards the edges of the pitch into drainage channels positioned around the perimeter of the playing surface.

With horizontal drainage of synthetic grass playing surfaces, the sub-base becomes the key element to the correct functionality and efficiency of the entire system, which means

it must have certain characteristics:

- ▷ **flatness:** the surface of the sub-base must not have any hollows to make sure water flows away evenly and there are no paddles;
- ▷ **slope:** the surface of the sub-base should have proper sub-gradients to the side (from 0.58% to 0.63% i.e.) to guarantee that water flows off by gravity within a given time;
- ▷ **volumetric stability:** the sub-base must maintain its flatness and gradient over the years to guarantee the functionality of the playing surface;
- ▷ **strength:** the sub-base must have proper bearing capacity to withstand vehicles driving over the playing surface for maintenance work or during a match.

This technical solution, developed and perfected in MAPEI's R&D laboratory specifically for the sports infrastructure sector, is based on the technical specifications of C.I.S.E.A. (the Italian Synthetic Grass Playing Fields Commission). It involves stabilising the existing soil under the playing surface by adding a powdered, fibre-reinforced stabilising agent with hydraulic properties, **Mapesoil 100** or **Mapesoil 50**, which is mixed with the soil to give the sub-base characteristics which create the correct horizontal drainage properties for the playing surface.

Application phases for Mapesoil 100 and for Mapesoil 50



Topsoiling of the old natural grass surface



Spreading on the **Mapesoil 100 / Mapesoil 50** with a sandblaster



Mixing in the **Ma**

What are Mapesoil 100 and Mapesoil 50?

Mapesoil 100 and **Mapesoil 50** are hydraulic, fibre-reinforced stabilising agents in powder form which are used to make sub-bases for synthetic grass playing fields with horizontal drainage by means of a soil-stabilisation process. The main areas of use for **Mapesoil 100** and **Mapesoil 50** are:

- ▷ sub-bases for synthetic grass playing surfaces with horizontal drainage (e.g. football pitches, etc.);
- ▷ consolidating and stabilising sub-bases for existing playing surfaces (e.g. clay tennis courts);
- ▷ maintenance work on existing synthetic grass playing fields by cold-recycling existing bitumen conglomerate sub-bases.

How do Mapesoil 100 and Mapesoil 50 work?

When **Mapesoil** powder is mixed thoroughly into the soil to be treated, it performs an important consolidating action and gives the material, which is already present on the playing field, the characteristics required to install synthetic grass (strength, volumetric stability, slope and flatness). The hardening action carried out on the soil treated with **Mapesoil 50** or **Mapesoil 100** contributes in improving the durability of the sub-base compared with traditional stabilisation treatments (lime/cement). The high performance characteristics of **Mapesoil** also help to reduce

the amount of soil that needs to be treated (a layer from 8 to 15 cm thick, depending on the type of soil) compared with other systems, which in some cases require layers up to 30 cm thick to be treated, which also means the process is much quicker.

Regarding the cost of adopting this system to convert an existing playing field to synthetic grass, depending on the specifications of each project, it can be considerably more economical to create a sub-base using **Mapesoil** technology rather than with a classic vertical drainage system (using aggregates), which involves digging up more than 4.000 m³ for each pitch and all the associated costs to dispose of the material.

Thanks to the special formulation developed in the MAPEI research laboratories, **Mapesoil 100** and **Mapesoil 50** allow the stabilisation process to be applied to material coming from maintenance work on existing playing surfaces.

1. **Milled bitumen conglomerate.** **Mapesoil 100** and **Mapesoil 50** are used to cold-recycle old bitumen conglomerate sub-base. After milling, the material can be stabilised directly on site, thus avoiding costs for handling and disposing of special waste. In fact, treating material with **Mapesoil 100** and **Mapesoil 50** also makes possible waste immobilization.
2. **Clay playing surfaces.** **Mapesoil 100** and **Mapesoil 50** may be used to stabilise old clay tennis courts where the latest generation of synthetic grass with horizontal drainage is to be installed.



Mapesoil 100 / Mapesoil 50 with a stoneburler



Wetting the soil



3. **Worn out synthetic grass playing surfaces.** **Mapesoil 100** and **Mapesoil 50** allow the old synthetic grass surface to be re-used so it does not have to be disposed of. Through a simple process which separates the stabilising infill and minces the grass, the worn playing surface that needs to be replaced may be added to the mixture with **Mapesoil 100** and **Mapesoil 50** and incorporated in the sub-base for the new playing surface. All these operations can be carried out on site so that materials handling is reduced to a minimum.

ADVANTAGES

The use of **Mapesoil 100** and **Mapesoil 50** technology to make sub-bases for synthetic grass playing surfaces offers numerous technical and economic advantages, such as:

- ▷ simple application;
- ▷ the treatment thickness may be reduced considerably (8-15 cm) with the same performance;
- ▷ the soil available on site and/or recycled material may be used, reducing materials handling and energy consumption;
- ▷ the time required to make the sub-base for the playing surface may be reduced;
- ▷ the durability of the treatment may be increased;

- ▷ improves the efficiency of the playing field's horizontal drainage system;
- ▷ improves playing comfort and offers a safer playing surface for athletes;
- ▷ meets the technical and performance requirements of professional and amateur football associations.

How are Mapesoil 100 and Mapesoil 50 applied?

The application of **Mapesoil 100 / Mapesoil 50** consists in mixing the stabilising agent directly with the material to be treated and, if required, with water. The phases are as follows:

- ▷ preparation of the soil and removal of the topsoil and, where necessary, breaking up the soil;
- ▷ spreading on the **Mapesoil 100 / Mapesoil 50**;
- ▷ mixing in the **Mapesoil 100 / Mapesoil 50** and wetting the soil;
- ▷ compacting;
- ▷ levelling and shaping the surface;
- ▷ curing.



Levelling off

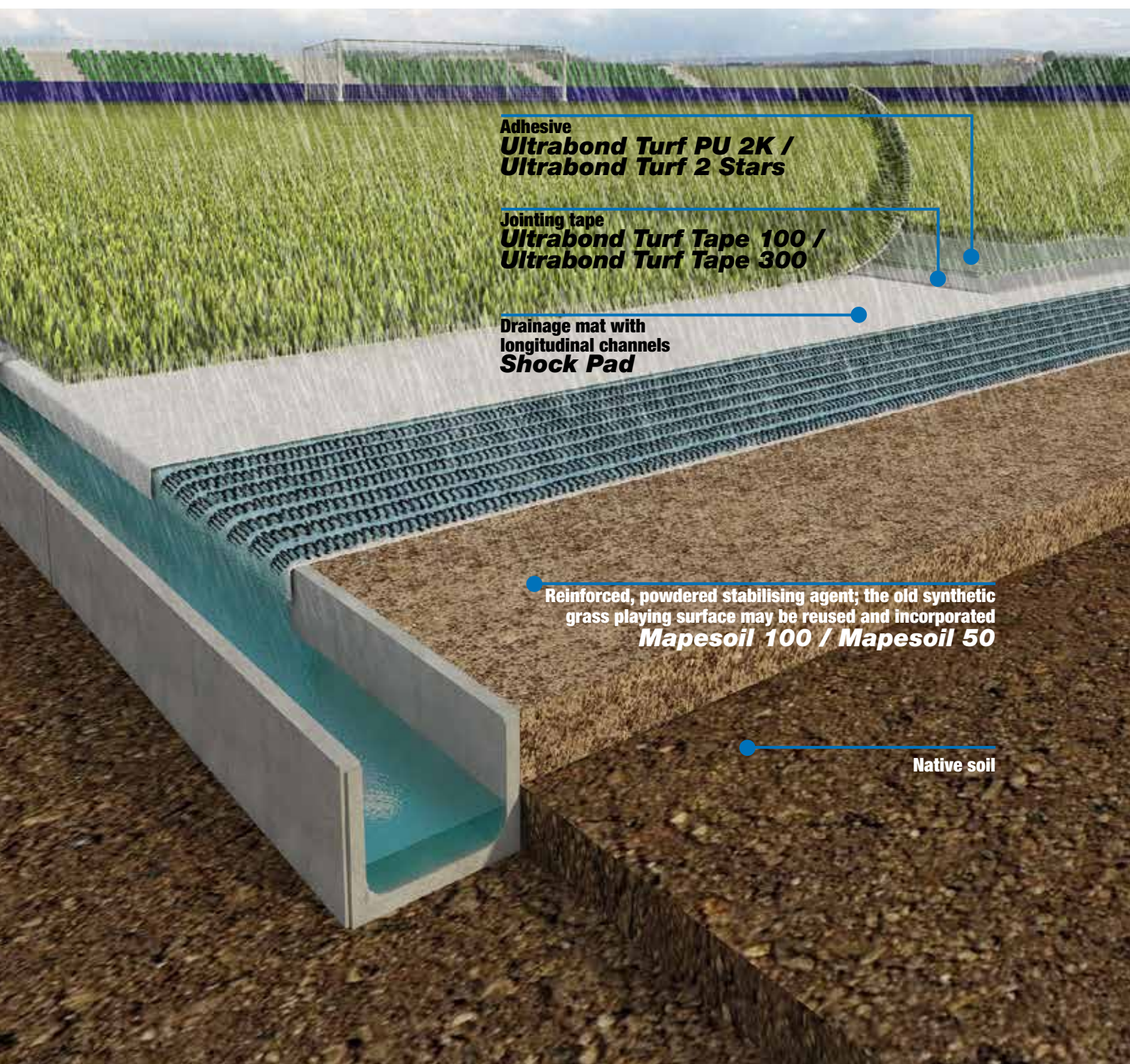


Compacting



Synthetic grass playing field with horizontal drainage made using **Mapesoil 100 / Mapesoil 50**

System for laying artificial turf surfaces for sport facilities



Adhesive
**Ultrabond Turf PU 2K /
Ultrabond Turf 2 Stars**

Jointing tape
**Ultrabond Turf Tape 100 /
Ultrabond Turf Tape 300**

Drainage mat with
longitudinal channels
Shock Pad

Reinforced, powdered stabilising agent; the old synthetic
grass playing surface may be reused and incorporated
Mapesoil 100 / Mapesoil 50

Native soil



HEADQUARTERS

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