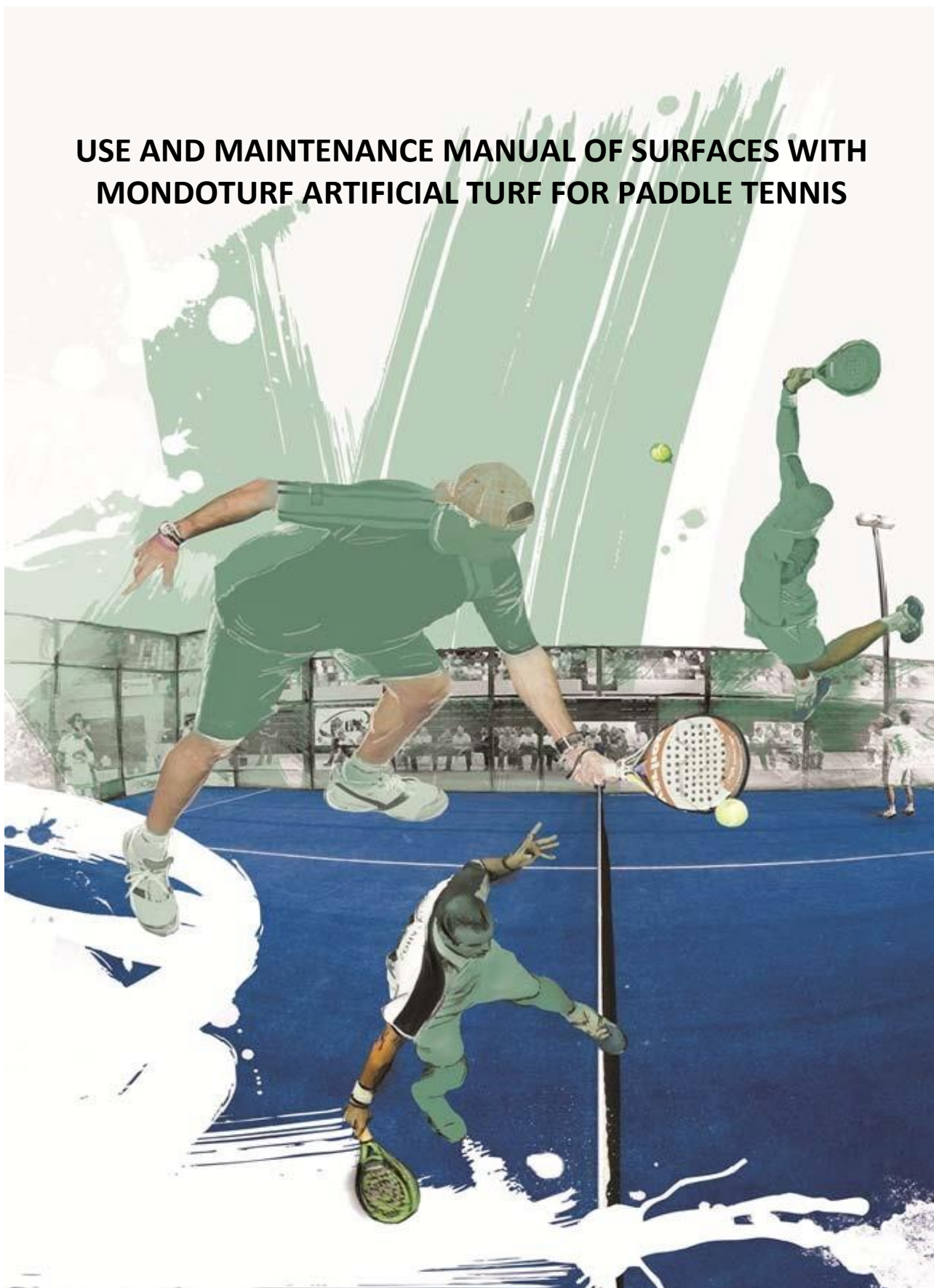


**USE AND MAINTENANCE MANUAL OF SURFACES WITH
MONDOTURF ARTIFICIAL TURF FOR PADDLE TENNIS**



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1. INTRODUCTION

Thank you for purchasing a MONDOTURF artificial turf system. MONDO's passion is the design, manufacture and installation of equipment and flooring for all athletes. Our philosophy is to create systems with technological innovation, biomechanical excellence and long lasting quality.

MONDO is the Official Supplier of equipment and flooring of numerous major sporting events and a world leader in the construction of sports facilities.

Each MONDOTURF product is designed to meet the most stringent requirements. Materials used in the manufacture of our products provide exceptional resilience. Each product undergoes numerous quality tests. In addition, the artificial turf systems have been individually tested in the most prestigious biomechanics laboratories in the world, ensuring the product an excellent technical and sports function.

We want our pitches to be a source of great satisfaction for our customers.

MONDOTURF artificial turf surfaces are designed and manufactured for constant and regular use. The operations and maintenance instructions described in this manual should therefore be observed in order to ensure a return on investment. This manual describes both the operational instructions and the directions for the proper maintenance of the playing surface.

It is important to understand that artificial turf surfaces must satisfy two different functions: the SPORTS FUNCTION and the TECHNICAL FUNCTION.

The SPORTS FUNCTION includes the properties of the artificial turf surface's system, which contribute to safety and performance.

It is important to differentiate between two aspects: player-artificial-turf-surface interaction and ball-artificial-turf-surface interaction.

The criteria used to assess the player-artificial-turf-surface interaction include:

- The reduction of forces, or shock absorption (related to the ability of the surface to reduce the stresses that the player undergoes when running or jumping);
- Vertical deformation (linked to changes that the surface undergoes following the actions of the players);
- Rotational and linear traction correlated to the grip of the shoe's sole and the turf;
- Abrasion of the skin

These are all aspects that are crucial to the safety of the player.

The vertical bounce and the angular bounce of the ball are the criteria used to assess the ball-artificial-turf-surface interaction.

The TECHNICAL FUNCTION includes the properties that allow the artificial turf surface to maintain its distinctive behaviour over time, depending on the environment and the use for which it is intended. A distinction must be made between the technical function of the support layer, or backing, and the actual system of the artificial turf surface. The criteria applied in the tests carried out on the support layer are the drainage capacity, the plan or the slopes. As for the playing surface, some of the specific tests include: wear simulation (LISPORT method), climatic ageing (UV), residual deformation and changes in the sand infill, seam strength, etc.

Artificial turf surface systems with quartz sand infill are not more difficult to maintain than conventional artificial turf used for other sports applications (with sand and rubber infill). Nevertheless, an appropriate maintenance schedule will safeguard the sports and technical functions.

Maintenance should be performed by a qualified company, accredited by MONDO for the provision of maintenance services of sports surfaces with MONDOTURF artificial turf surfaces.

MONDOTURF warranty conditions will be invalidated in the event of accidents due to improper use or inappropriate maintenance and repairs carried out by unqualified companies or companies that are not accredited by MONDO for the provision of maintenance services of MONDOTURF artificial turf sports pitches.

The properties of the artificial turf paddle tennis surface are altered by time and wear. A series of maintenance operations must be performed in order to maintain the technical properties of the court.

An appropriate, frequent and regular maintenance schedule will ensure safeguard the TECHNICAL AND SPORTS FUNCTION of the flooring for its specific intended use and ensure optimal conditions for playing paddle tennis:

- Minimum risk of injury to players;
- Maximum performance; A general condition of the paddle tennis court surface able to satisfy the needs of users.
- Extensive lifespan of the surface and associated economic benefits.

The aspects to be considered in the inspection and maintenance of each component of the artificial turf paddle tennis court are described in detail below. In all cases a distinction must be made between *routine* and *extraordinary* maintenance, not forgetting preventative and corrective maintenance.

Regular maintenance of artificial turf courts is essential for best performance, safety, lifespan and appearance. Inappropriate or inadequate maintenance contributes to premature deterioration of the flooring.



The structure of the artificial turf surface has three basic elements:

- Backing or support,
- Fibre
- Infill

These must be protected as much as possible from inclement weather conditions, and ambient contamination (dirt, pollution, etc.).

Each component of the artificial turf system can be damaged in different ways:

1. Support or backing:

The breakdown of this part of the surface can be due to excessive cutting forces, poorly produced joints, poor quality or inappropriate application of the geotextile tapes used for joints during installation, unsuitable quality or insufficient quantity of joint adhesive. Other possible causes are the presence of tree roots, which cause tearing, or expansion and contraction of the material in the joints.

To prevent this kind of breakdown, continuous inspection of joints is required. Tear and other damage should be repaired as soon as possible. A small tear can quickly become a serious problem if not taken care of quickly.

2. Fibre:

Fibre suffers most damage from the use of inappropriate footwear.

To help prevent this we recommend placing specific instructions about correct footwear at the entry points of the court. Footwear with metal spikes and footwear not intended for the specific sport should not be allowed.

3. Infill:

Daily use of the court may cause an irregular distribution of infill with consequent effects on the performance of the game.

Maintaining the correct levels and quality of infill optimizes the performance and the durability of the surface.

All External factors should also be taken into account. For example, resin-producing trees, irrigation, faulty drainage systems, areas exposed to the excessive sun or shade, etc. can accelerate the deterioration of the sports surface and affect performance.

2. GENERAL GUIDELINES

After the installation of the paddle tennis court artificial turf flooring, the playing surface should be irrigated using a special diffuser. This helps the silica sand to penetrate between the artificial turf fibres, ensuring adequate compaction.

This operation needs to be repeated weekly in the first month after installation, at which point, the court will have reached an appropriate condition for playing paddle tennis.

Maintenance should be differentiated in two operations:

1. ROUTINE maintenance, which can be performed in a simple manner by Facility Owners or Operators with their own equipment and personnel.
2. EXTRAORDINARY maintenance, which should be carried out by a maintenance company that is specialized in the maintenance of paddle tennis courts and has technically qualified personnel and suitable equipment.

1. ROUTINE MAINTENANCE PROGRAM

SURFACE CLEANING

Effective preventative practices and awareness programs should be implemented to minimize litter and spillage on the track..

The surface of the paddle tennis court and attached transit zones should be kept free of all litter. As a precautionary measure, small bins should be made available and these should be emptied on a regular basis.

Standard cleaning consists of sweeping with a broom with nylon bristles or blowing, to remove dirt, grit and leaves, etc.

I All leaves, seeds, flowers and other organic residues should be removed promptly to prevent decomposition that encourages mould. This should be done with a soft brush or rake with nylon, rubber or plastic tines or bristles. A blower can also be used, as long as care is taken not to alter the distribution of sand on the surface.

In areas close to the court, cleaning can be performed with a silent backpack blower, equipped with harness, and with a suitable catalytic converter.

The fibre is best cleaned with natural rainfall, which refreshes and removes dust, soot and airborne pollutants in a way that is not easily replicated with other systems. Rain also keeps the court's drainage systems clean and in optimal condition.

For covered or indoor paddle courts, the artificial turf should be regularly irrigated with water, using a diffuser to remove any impurities. This should be carried out on a monthly basis. In addition to cleaning the surface, irrigation allows a slight compaction of the silica sand infill, which also stabilizes the surface.

A certain level of moisture is beneficial. It keeps the playing surface clean and prevents sand and dust blocking the drainage holes of the artificial turf system. It also helps prevent the possible shifting of the artificial turf on the concrete foundation. Regular irrigation will ensure optimum maintenance of the system.

INFILLS

The infill is an essential element in creating the correct player-surface and ball-surface interaction.

For this reason, the choice of sand type (preferably spheroidal), particle size and quantity is crucial.



The infill of the artificial turf is a system in motion and the components of the infill move naturally during the game. This shifting is heightened in areas of more intense use. Periodical brushing is advisable to redistribute the sand.

Court used more intensely will have a higher level of infill displacement. As such, the frequency of redistribution interventions should be determined according to the needs of each court.

Displacement of silica sand may also vary according to the type of artificial turf. Displacement occurs more readily in systems using monofilament artificial turf than in those with fibrillated fibres. and in systems with lower density of filaments, referred to as the “number of stitches per m²”.

Brushing and distribution of infill is done with a broom or a rotating brush with soft nylon bristles, brushing in all directions. Accumulated infill in corners and near walls must be dispersed towards the interior of the court, in order to regularly and uniformly distribute the infill material. This action helps to prevent anomalies of performance, for example in bounce of the ball, and/or twisting, acceleration and directional changes of the players.

Regular irrigation is recommended in covered or indoor artificial turf courts in order to promote compaction of the silica sand.

Systems with artificial turf surfaces in indoor facilities are not affected by rain, so if the surface is not irrigated regularly, the silica sand will not compact and dust is not removed. In addition, failing to irrigate can cause the sand to shift, resulting in displacement of the artificial turf system on the substrate, with consequent wrinkles.

Inappropriate quality, dosage or distribution of silica sand can alter the performance and/or technical characteristics of the surface.

Removal of "weeds"

Seeds dispersed by wind, birds, etc., can germinate in the silica sand.

These weeds must be removed regularly with specific maintenance procedures using a corrective treatment similar to that used for wild turf and moss. If the specific conditions of the facility favour weed infestation, a foliar absorption herbicide and anti-germination product should be applied to the specific areas.

Prevention: KEEP IT CLEAN SO AS NOT TO CLEAN AFTERWARDS

Steps can be taken to keep the surface free of organic residues and litter, such as the provision of bins and restricting consumption of foods with shells and peel, like peanuts and oranges.

4. EXTRAORDINARY MAINTENANCE PROGRAM

SURFACE CLEANING



Irrigate the turf with water to clean the fibers and sand, and, at the same time, keep drainage holes clear and protect the court's sub-base drainage system.

Use a sweeper with rotating brushes to remove litter from the playing surface.

Cleaning can also be carried out with alternative means like street-cleaning brooms, brushes with nylon bristles, or blowers.

SURFACE UNPACKING



Silica sand infill can be unpacked and aerated using an apparatus equipped with a specific rotating brush that penetrates between the fibres of the artificial turf system.

In this way, the playing surface is restored to its original condition.

Once the surface has been re-installed, the surface must be lightly brushed.

Inspection of line marking and joints

Joints, line marking and high-wear areas of the court should be inspected and damaged or worn areas should be repaired and/or replaced.

**Infill and redistribution of the infill sand**

Surfaces can exhibit poor or abnormal performance in areas where the infill sand is unevenly distributed. Adding and redistributing infill in these sensitive areas can restore the original condition of the court.

The infill process can be performed manually using a broom with soft nylon bristles or an automatic rotating brush with the same characteristics. The distribution of the infill should be made in a regular and uniform manner over the entire playing area.

Care should be taken to brush in all directions. Any accumulated infill in corners must be manually directed towards the centre of the court.

Chewing gum

Chewing gum can be removed with an "instant ice" spray and then gently scraped off by hand.

APPLICATION OF HERBICIDES

Seeds of dispersed by wind, birds, etc., can germinate in the silica sand if they penetrate sufficiently.

To prevent this, corrective treatment for wild grasses and moss must be carried out. A foliar absorption herbicide should be used, together with an local application of an anti-germination treatment .

5. RECOMMENDED SCHEDULE OF THE OPERATIONS

Establishing a schedule for routine and extraordinary maintenance is advised. Intensity and frequency of maintenance operations are subject to the system's level of use, the external climatic conditions, location, etc.

All artificial turf pitches require adequate and regular routine and extraordinary maintenance..

PREVENTIVE ROUTINE MAINTENANCE	WEEKLY	FORTNIGHTLY	HALF YEARLY	ANNUAL
SURFACE CLEANING	•	•		
REDISTRIBUTION OF SAND	•	•		
REMOVAL OF FUNGI AND MOSS		•		
INSPECTION OF LINE MARKING AND JOINTS		•		
THOROUGH CLEANING AND UNPACKING			•	
PREVENTIVE / CORRECTIVE EXTRAORDINARY MAINTENANCE	WEEKLY	FORTNIGHTLY	HALF YEARLY	ANNUAL
SURFACE CLEANING			•	•
REDISTRIBUTION OF SAND			•	•
REMOVAL OF FUNGI AND MOSS			•	•
INSPECTION OF LINE MARKING AND JOINTS			•	•
THOROUGH CLEANING AND UNPACKING			•	•

Maintenance should be undertaken by a qualified company, accredited by MONDO for the provision of services and maintenance of sports surfaces with MONDOTURF artificial turf surfaces.