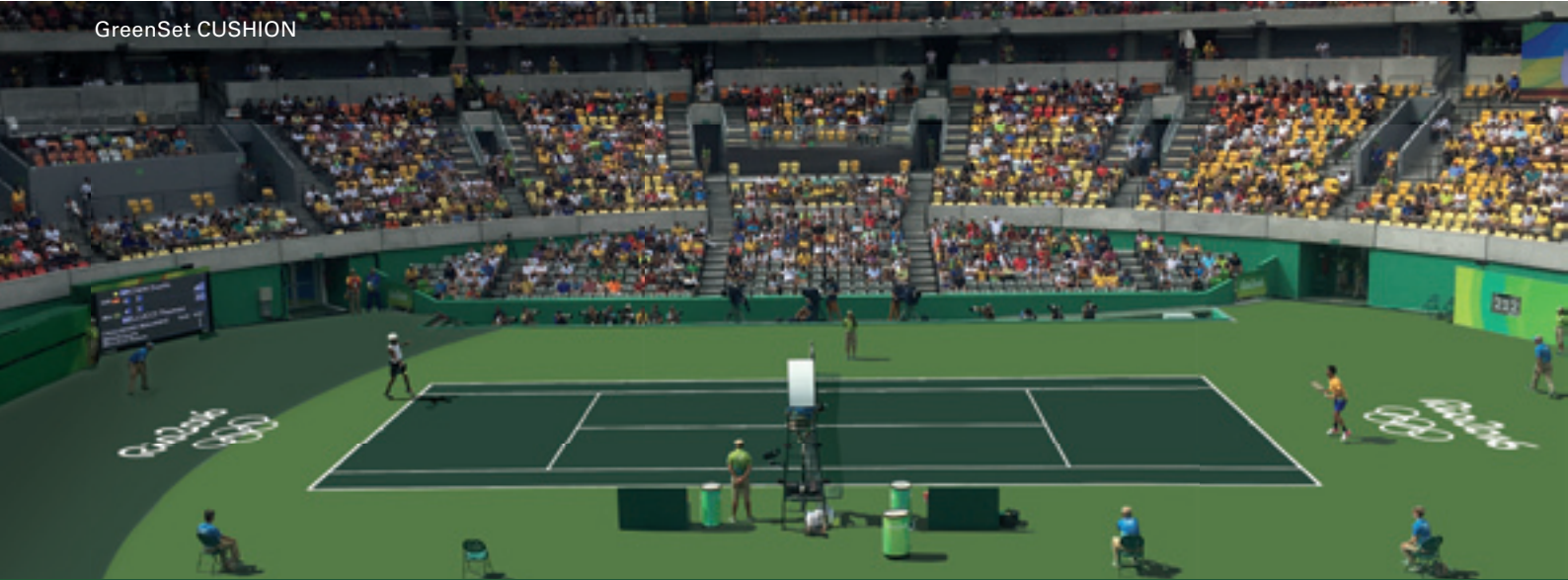


# GreenSet®

THE BEST SURFACE FOR THE BEST TENNIS™

GreenSet CUSHION



## SURFACE SPECIFICATIONS

# GreenSet® GRAND PRIX

Revision: September 2017

## General Information, Description and Use

GreenSet GRAND PRIX is a **top quality, non-slip, wear-resistant, durable** and enduring surface for tennis courts and other sports floors, suitable for indoor and outdoor use, for all kind of players and for all kind of game styles. Developed in 1970 to provide optimal training performance to help young players fulfil their dreams, GreenSet GRAND PRIX surface is **the world's most widely used in tennis academies and training centres**. It has been **tested in laboratories and training centres**, and classified by the ITF (International Tennis Federation) as a Medium to Medium-Slow surface.

GreenSet GRAND PRIX surface may be applied on many sub-bases (new asphalt, concrete, wooden floor, or to be renewed/resurfaced) and is comprised of a preparatory layer (which varies according to the kind of such sub-base) and several superimposed layers of concentrated acrylic resin-based products that are:

- Supplied in **convenient** formulas that allow a uniform suspension of all components needing only the addition of fresh potable water to be ready for installation, ensuring **consistency** and **homogeneity** in any part of the court and between different courts worldwide.
- **Non-hazardous, non-dangerous** and **environmentally-friendly**, which is evidenced by strict external tests that reflect for instance the

**total absence of harmful substances** such as heavy metals or asbestos, and the extremely low contents in VOCs (Volatile Organic Compounds).

- Manufactured in a factory assessed and certified as meeting the requirements of the **ISO 9001: 2008 QUALITY MANAGEMENT SYSTEMS**, as well as those of **ISO 14001: 2004 ENVIRONMENTAL MANAGEMENT**. The requirements of ISO 14001 are an integral part of the **Eco-Management and Audit Scheme (EMAS)** of the European Union.

The purpose of the GreenSet® surfaces is not to waterproof or seal, prevent capillary rise or repair minor cracks. Large fissures or cracks are generally due to geological causes, such as bending of strata, and therefore will reappear in the medium to long term.

A minimum training in the installation and prevention of occupational hazards is recommended for the professional personnel handling the products to facilitate proper understanding and interpretation of safety data sheets and labelling.

Our surfaces deliver **unparalleled durability, endurance** and **easiness of maintenance**. To ensure their qualities are preserved follow the advice on the Maintenance and Care Guidelines.



## Technical Data of the Products

### Description of the Products

The GreenSet GRAND PRIX surface consists of various superimposed layers of compatible and complementary materials: one preparation layer of PREBASE (when the sub-base is asphalt) or of BONDING COAT (when the sub-base is concrete or an existing surface), one layer of BLACK BASE, one layer of COLOUR BASE, one layer of FINISH and the game LINES.

- **PREBASE** is a **high-quality, high-strength, good-grip, easy-to-use** and **easy-to-apply** preparatory covering for tennis courts (new asphalt and renovated courts) and other sports floors suitable for outdoors and indoors, based on a fine slurry mixture containing aggregates of controlled granulometry in a high-stability bituminous emulsion. Its main use is intended for the preparation of the asphalt base with a filling, replenishing, pore-blocking, aligning, and slightly levelling function for small puddles of water, minor imperfections of the bituminous surface or excessively porous asphalt, in order to avoid subsequent products to be wasted through those pores and improve the characteristics of the base of the surface.
- **BONDING COAT** is a **top-quality, easy-to-use** and **easy-to-apply** preparatory covering for tennis courts (new concrete, cement, wood, and renovated courts) and other sports floors suitable for outdoors and indoors, providing very high adherence, persistence, and flexibility capable of bearing slight contractions of the substrate.
- **BLACK BASE** is a **top quality, wear-resistant, durable** and **enduring** concentrated coating for tennis courts and other sports floors, suitable for indoor and outdoor use, based on acrylic resins, siliceous sand, resistant pigments, additives, and organic solvents in an aqueous medium. Its main use is as first and filling layer of acrylic resin, stuffing and homogenizing with a rough finish, on all original GreenSet® tennis surface systems (GreenSet GRAND PRIX, GreenSet CUSHION, GreenSet CUSHION FLEX, GreenSet COMFORT, GreenSet PRO, GreenSet GRANDPRIX CUP, GreenSet TOP, etc.) as well as in GreenSet surfaces for other sports (Multisport, BMX, etc.).
- **COLOUR BASE** is a **top quality, wear-resistant, durable** and **enduring** concentrated coating for tennis courts and other sports floors, suitable for indoor and outdoor use, based on acrylic resins, siliceous sand, resistant pigments, additives, and organic solvents in an aqueous medium. Its main use is as second and filling layer of acrylic resin, stuffing and homogenizing with a rough finish, on top of BLACK BASE on all original GreenSet® tennis surface systems (GreenSet GRAND PRIX, GreenSet CUSHION, GreenSet CUSHION FLEX, GreenSet COMFORT, GreenSet PRO, GreenSet GRANDPRIX CUP, GreenSet TOP, etc.) as well as in GreenSet surfaces for other sports (Multisport, BMX, etc.), and in preparation for the acrylic resin finishing layer. Supplied in 3 colours immediately available, many others are also generally in stock, and we may develop all kinds of custom colours on request.
- **FINISH** is a **top quality, non-slip, wear-resistant, durable** and **enduring** concentrated coating for tennis courts and other sports floors, suitable for indoor and outdoor use, based on acrylic resins, siliceous sand, resistant pigments, additives, and organic solvents in an aqueous medium. Its main use is as colour finishing layers of acrylic resin, filling and homogenizing with a slightly rough finishing, which is applied on top of the GreenSet COLOUR BASE on most original GreenSet® tennis surface systems (GreenSet GRAND PRIX, GreenSet CUSHION, GreenSet CUSHION FLEX, GreenSet COMFORT, etc.) as well as in GreenSet surfaces for other sports (Multisport,



etc.). Supplied in **more than 15 colours immediately available**, many others are also generally in stock, and we may develop **all kinds of custom colours** on request.

- **LINE** is a **top quality, non-slip, anti-reflective, wear-resistant, durable** and **enduring** concentrated coating for tracing and painting lines on tennis courts and other sports floors, suitable for indoor and outdoor use, based on acrylic resins, siliceous sand, resistant pigments, additives, and organic solvents in an aqueous medium. Its main use is designed to trace and paint the game lines, with a slightly rough, non-slip, anti-glare and anti-reflective finish, which is applied after the finishing/upper acrylic resin layer on all original GreenSet® tennis surface systems as well as in all GreenSet surfaces for other sports. Supplied in **more than 12 colours immediately available**, many others are also usually in stock, and we may develop **all kinds of custom colours** on request.

### Physical Appearance, Packaging, and Density

See information on appearance, packaging, and density detailed by product in the table on page 4.

### Health, Safety, and Environment

Read carefully the Safety Data Sheet of each product available on request and follow the instructions on the drums for normal storage, handling, use, and disposal.

All products are for professional use only. Do not take internally and keep out of reach of children. Dispose of containers in accordance with applicable regulations.

**Non-flammable, non-hazardous** and **not harmful** products (according to the Directive 1999/45 / EC - 2006/8 / EC), with no restrictions on marketing and use (Annex XVII REACH, etc.) and no need for specific labelling of danger, caution or hazard statement. They do not have any significant known health risk or environmental impact, neither in the short nor in the long term. They have no substance taking part in their mixtures in a percentage greater than the exemption limit. All ingredients

are listed in the list of pre-registered substances published by the European Chemicals Agency (ECHA) in accordance with Article 28 of the Regulation 1907/2006. They do not contain substances subject to authorization in Regulation EC 1907/2006 (REACH), no substances listed in the authorization list of REACH Annex XIV, and no substances that perforate the ozone layer (Regulation EC 1005/2009), and are not considered a hazardous waste under the European Directive 2008/98 / EC.

### VOC

The **limit content of VOCs** (Volatile Organic Compounds) in the EU for all these products is **140.0 g/l** (Cat. A.I, except for BONDING COAT that is 30.0 g/l) in accordance with the application of Directive 2010/75 / EU. The content in all GreenSet products is extremely below this limit, ranging slightly from one reference to another, being on average **less than 1.0 g/l**. See some detailed VOC values in the table on page 4.



\* Information on the level of emission of volatile substances in indoor air, with a risk of inhalation toxicity, on a class scale ranging from A+ (very low emissions) to C (high emissions).

### Storage and Transport

Minimum temperature is 5 °C and maximum 40 °C. Prolonged storage at temperatures outside this margin may spoil the product.

Maximum duration of sealed factory drums under ideal storage conditions (dry, cool place between 15 °C and 25 °C and protected against damage) is 24 months in all cases except for PREBASE that is 9 months.

Products not subject to any hazard classification or transport limitation (no ADR/RID, AND, IMDG / IMO, IATA/OACI, etc.).

	Physical appearance	Packaging	Density (at 20 °C)	VOC value	Dilution	Application rate	Drying times
<b>PREBASE</b>	Slurry liquid consistency mixture of homogeneous appearance with aggregates of 1 mm maximum size (Standard UNE 933-1) and dynamic viscosity 300000 mPa · s (at room temperature). Black brownish colour.	Hard cardboard drums with solid plastic bag inside containing 45 kg.	Between 1.5 and 1.7 g/cm <sup>3</sup>	0.00 g/l	Do not dilute. If needed, maximum 5% or 2 litres per 45 kg (1 drum).	When an entire layer is needed, about 2.08 kg/m <sup>2</sup> , very much dependent on the sub-base.	8 hours minimum.
<b>BONDING COAT</b>	Colourless milky liquid, matte when dried.	Sturdy metal drums containing 20 kg.	Relative density: 1.035	6.61 g/l	Do not dilute. If needed, maximum 25% or 5 litres per 20 kg (1 drum).	0.10 kg/m <sup>2</sup>	6 hours minimum.
<b>BLACK BASE</b>	Black greyish colour, matt on drying. Physical state at 20 °C: liquid.	Sturdy metal drums containing 30 kg.	Relative density: 1.921	0.27 g/l	Maximum 8% to 10%, or 15 to 18 litres of water per 180 kg (6 drums).	From 0.51 kg/m <sup>2</sup> to 1.5 kg/m <sup>2</sup> : On new asphalt 1.11 kg/m <sup>2</sup> On PREBASE 0.83 kg/m <sup>2</sup> On CONCRETE BOND 0.51 kg/m <sup>2</sup>	4 to 6 hours minimum.
<b>COLOUR BASE</b>	3 colours immediately available: Green, Red, and Sport Blue. Other colours usually in stock: London Finals Blue, Intermediate Grey, Montpeller Crimson, Mons Orange and Miami Purple. Many others also usually in stock, and all kinds of custom colours developed on request. Physical state at 20 °C: liquid.	Sturdy metal drums containing 30 kg.	Average relative density: 1.915. Density slightly oscillates between 1.821 and 1.955 according to colour/reference, e.g.: Green 1.927; Sport Blue 1.926; Red 1.925; London Finals Blue 1.904; Miami Purple 1.908; Intermediate Grey 1.908; Anthracite Grey 1.955; Montpeller Crimson 1.873.	Average 0.25 g/l. Variation by colour from 0.01 to 0.74 g/l.	Maximum 8% to 10%, or 15 to 18 litres of water per 180 kg (6 drums).	0.56 kg/m <sup>2</sup>	4 to 6 hours minimum.
<b>FINISH</b>	15 colours immediately available: Apple Green, Light Green, Dark Green, Rio Games Dark Green, London Finals Blue, Sport Light Blue, Virgin Blue, Classic Light Blue, Sport Dark Blue, Paris Bercy Blue, Miami Purple, Intermediate Grey, Paris Bercy Anthracite, Light Terracotta, Dark Red. Many others also usually in stock, and all kinds of custom colours developed on request. Physical state at 20 °C: liquid.	Sturdy metal drums containing 25 kg.	Average relative density: 1.732. Density slightly oscillates between 1.679 and 1.817 depending on the colour/reference, e.g.: Apple Green 1.703; Light Green 1.817; Dark Green 1.754; Rio Games Dark Green 1.690; London Finals Blue 1.759; Sport Light Blue 1.732; Virgin Blue 1.688; Classic Light Blue 1.727; Sport Dark Blue 1.717; Paris Bercy Blue 1.698; Miami Purple 1.702; Intermediate Grey 1.743; Paris Bercy Anthracite 1.770; Light Terracotta 1.788; Dark Red 1.776.	Average 0.25 g/l. Variation by colour from 0.01 to 0.74 g/l.	Maximum 8% to 10%, or 8 to 10 litres of water per 125 kg (5 drums).	0.46 kg/m <sup>2</sup>	4 to 6 hours minimum.
<b>LINE</b>	12 colours immediately available: VWhite, Light Green, Dark Green, Light Blue, Dark Blue, Classic Blue, Black Grey, Light Terracotta, Dark Red, Traffic Red, Mons Orange, and Signal Yellow. Many others also usually in stock, and all kinds of custom colours developed on request. Physical state at 20 °C: liquid.	All colours, sturdy metal drums containing 25 kg. White also in cans containing 5 kg.	Average relative density: 1.634. Density slightly oscillates depending on the colour/reference, e.g.: White 1.688; Light Green 1.663; Dark Green 1.636; Light Blue 1.627; Dark Blue 1.611; Classic Blue 1.621; Light Terracotta 1.676; Dark Red 1.664; Traffic Red 1.582; Signal yellow 1.572.	Average 0.15 g/l. Variation by colour from 0.01 to 0.37 g/l.	Do not dilute. If needed, maximum 5%.	0.72 kg/m <sup>2</sup>	Minimums: 4 hours to touch and 24 hours to walk on.



## Technical Data of the Surface

### ITF Certificates and Recognitions

GreenSet® offers surfaces classified by the International Tennis Federation in **all possible ITF classifications** (classes 1 to 5). GreenSet also holds **ITF Recognitions** (One-Star Recognition and Two-Star Recognition).

The recommended classification by the ITF for GRAND PRIX is as a Medium or alternative Medium-Slow pace surface and the ITF certificate is Category 3 Medium.

### Fire Resistance

The liquid products before installation used in GreenSet GRAND PRIX are **non-flammable**. Tests of the surface installed with GreenSet BASE and FINISH (products used as upper layers of the GreenSet GRAND PRIX surface) show that the finished / dry surface is very difficult to flame: UNE-EN ISO 11925-2: 2011 and UNE-EN ISO 9239-1: 2011. Result of the **Euroclass Classification of Reaction to Fire: CLASS B<sub>FL</sub> s1** (B= Very difficultly flammable; <sub>FL</sub>= Product for the floor; s1= Does not produce smoke at all).

### Resistance to Friction

Our custom resin surfaces, such as GreenSet GRAND PRIX, deliver **unparalleled durability** and **endurance**.

Their proven durability and high resistance to wear and abrasion is reflected in the still good appearance and performance of heavily used facilities as well as in laboratory **Resistance to Friction** test results, **exceeding 10,000** (ten thousand) passes / frictions.

### Resistance to Sunlight

The resistance of our surfaces and their colours to the sun is also very high. Laboratory-simulated Sun-Resistance tests for 500 hours reflect a resistance with a value of **QSun DE <2**.

### Absence of Harmful Substances (Heavy Metals, etc.)

GreenSet is committed to the **care for the environment**, the **safety**, and the **harmlessness** of our products. They are subjected to rigorous testing stricter than those legally required for this kind of products. For example, tests using the technical method ME.Q.137 ICP-MS show that the acrylic resin products used in GreenSet CUSHION meet the requirements for the **absence of heavy metals (Lead, Mercury, Chromium, Cadmium)** applying the regulation EN 71-3, Class III, which establishes chemical migration limits for toys and objects for small children.

### Thickness of the Surface

The approximate minimum standard thicknesses of the entire system is > 2 mm, but we can also customise this.

## Application Details

### Conditions

- The sub-base must be properly cured without using curing compounds or hardeners (minimum curing time is 14 days for new asphalt and 30 days for concrete), and must not contain residual moisture. The sub-base must comply with the provisions of the ITF specifications and the technical requirements stipulated by GreenSet.
- The sub-base may be asphalt (cold and hot-mix), concrete/cement (with a proper vapour barrier), wood, etc. using the corresponding prerequisite product for each case (GreenSet PREBASE, GreenSet BONDING COAT, etc.).
- Before applying any product/layer make sure that the surface or previous coat is clean, completely dry, and in good condition.
- When the products are applied indoors, it is advisable to ensure good ventilation to facilitate proper drying.



- Do not apply over damp or wet surfaces (maximum substrate moisture content: 3%).
- Do not apply during rain, fog, extremely high humidity (80%) or inclement weather or when it is expected.
- Do not apply to surfaces during the out-gassing of vapour.
- Do not apply on surfaces that are not perfectly clean (free of any kind of oil/fat/grease, gasoline, gum, soda, dust, dirt, and any loose material).
- The minimum temperature (room and substrate) during application and curing is 10°C; do not apply if the surface temperature is above 10°C during application but is anticipated to decrease below 10°C (e.g. at night) before the coat is dry.
- The maximum room/ambient temperature during application of a coat is 25°C.
- The maximum surface temperature during application (from beginning to end of the coat) is 40° C. While the coat is drying, the temperature of the surface may be higher (maximum 55 °C).
- The water used in all mixtures shall be fresh and potable.
- Prior to applying any layer of the GreenSet GRAND PRIX system, make sure the previous one is clean and dry. After applying each coat it is advisable to wait for a minimum of 6 hours to test drying (8 hours after PREBASE) by rubbing with fingers in a non-visible area.
- After finishing application of LINE, wait for a minimum of 72 hours to test dryness.
- Do not walk on the court surface until it is completely dry.
- Do not water or wash with water the surface for at least a week after its application (even when apparently dry).

### Preparation

The surface must be in good condition, dry, thoroughly clean, and free from oil, grease, gasoline, gum, soda, dust, dirt, spalls, and loose materials. High-pressure cleaning with water is often sufficient, but the installation technician will judge the advisability of mechanically cleaning by

sandblasting or grinding. Cracks must also be cleaned and repaired.

Once it has been cleaned and freed from loose material, the surface should be examined for the presence of hollows, birdbaths, depressions, puddles and other defects. Depending on the number and extent of such imperfections, the installer will diagnose whether it is sufficient to individually repair them or if a complete repair layer needs to be installed with the corresponding product.

Any asphalt imperfection must be addressed, repaired and levelled: scale, spall, delamination, pothole, protrusion, protuberance, and any other defect, even when an entire layer of PREBASE is intended to be installed. Any puddle to fix should be less than 3 mm deep. When repairing locally with PREBASE it is not advisable to apply too thick layers (> 2 mm), which can lead to poor drying of the product. If necessary, proceed by installing thin successive layers allowing each to dry well before installing the next.

Prior to apply any product ensure that the surface or previously applied product is completely dry.

### Equipment

Flexible rubber squeegee between 80 cm and 1 meter wide to apply all products except for LINE.

Brush or roller to apply LINE. Masking tape to pre-mark lines.

### Dilution, Consumption Rates, and Drying Times

The table on page 4 details information on dilution, consumption/application rates, and drying times by product.

**Dilution** depends on room temperature and weather (high temperatures and wind may require slightly higher dilutions than low temperatures and dry weather). Figures in the table are **maximum dilutions, never exceed these quantities.**

Products for GreenSet GRAND PRIX are supplied in concentrated forms that allow a uniform suspension of all components inside, needing the addition of no other material but fresh potable water to be ready for installation, which ensures consistency and homogeneity in any part of the court and between different courts.



Nevertheless, to allow a homogeneous mixture with the water when it is added, all these products shall be blended with a mixer with a stainless steel blade/shaft at low speed (400 to 600 rpm) in a clean 200 litre tank, drum or container (except for LINE that may be manually mixed in its original drum with the brush when diluted).

**The application or consumption rates** of the products indicated in the table are **for a GreenSet GRAND PRIX court** and are **average estimates of the concentrated products before dilution** (when dilution applies).

Assessment by the installer prior to ordering products is advisable, especially in the case of BLACK BASE as the consumption rate depends very much on both the type of sub-base and on the condition in which it is.

**Drying times** depend upon ambient and climatic conditions (humidity, temperature, wind, outdoors/indoors, etc.). **The drying times indicated in the table are minimum times** and it is crucial to ensure that each coat is completely dry before applying the subsequent one.

## Procedure

Before applying any product or subsequent layer **ensure that the previous one is completely dry**, bearing in mind that **drying times indicated are minimums** and that they depend upon ambient and climatic conditions (humidity, temperature, wind, outdoors/indoors, etc.).

Facilitate ventilation for indoor applications. Keep drums tightly closed when not in use. Clean the squeegee and all tools with water immediately after use.

Preparatory alternative products / layers (either PREBASE or one layer of BONDING COAT, depending on the sub-base, and if necessary):

- **PREBASE:** Depending on the number, extension, and size of the puddles and imperfections, the installer will diagnose whether it is sufficient to repair them or whether an entire layer of PREBASE is needed. As a general rule:
  1. Repair and level every single imperfection and puddle areas with PREBASE if there are not many

of them, they have a small diameter / size, and they are not very deep (any single puddle should be below 3 mm depth), to level the surface.

2. Consider installing an entire PREBASE layer if the pools of water or puddles are deeper than 2 mm and have an extension above 1 square meter, and when there are various puddles, numerous imperfections, and / or the asphalt is too porous.

Apply one coat (on the specific area or the entire court) using the rubber squeegee flowing from side to side. The coat should be completely dry before applying any subsequent coat. Minimum drying time: 8 hours.

The installation technician will judge the necessity of using a vibration roller or a compacter roller after applying PREBASE, or of polishing before the application of the following layer.

- **BONDING COAT:** Apply one coat using the rubber squeegee. If it is not diluted, shake the product before application.

Acrylic layers (one of BLACK BASE, one of COLOUR BASE, one of FINISH, and one of LINE):

- **BLACK BASE:** Check that the previous product or layer (PREBASE or BONDING COAT) is completely dry. Apply one coat of BLACK BASE using the rubber squeegee flowing from side to side. Never interrupt the application until the entire area (court or half court) is completely finished. The coat should be completely dry before applying the subsequent one. Minimum drying time: 4 to 6 hours.

After drying and before applying COLOUR BASE potential imperfections should be eliminated (scraped and blown away, with the adequate tools approved by GreenSet).

- **COLOUR BASE:** Check that the previous layer is completely dry and apply one coat of COLOUR BASE using the rubber squeegee flowing from side to side. Never interrupt the application until the entire area (court or half court) is completely finished. The coat



should be completely dry before applying any subsequent coat. Minimum drying time: 4 to 6 hours.

After drying and before applying the next coat potential imperfections should be eliminated (scraped and blown away, with the adequate tools approved by GreenSet).

- **FINISH:** Check that the previous layer is completely dry and potential imperfections have been addressed/eliminated. Apply one coat of FINISH using the flat rubber squeegee flowing from side to side. Never interrupt the application until the entire area (court or half court) is completely finished.

The coat should be completely dry before drawing and painting the game lines. Minimum drying time: 4 to 6 hours. If possible, allow a minimum of 24 hours after

FINISH coat before applying any LINE.

- **LINE:** Check that the previous layer is completely dry and very carefully eliminate the potential imperfections that might be just in the area where the lines are to be painted (carefully scraping and blowing, with the appropriate tools approved by GreenSet). All lines are to be marked using masking tape.
- Apply one to two coats as needed of LINE (usually one is sufficient) using a paint brush or roller. Remove masking tape immediately after lines are dry. Allow LINE to dry a minimum of 24 hours before walking on the court.

In order to promote proper hardening and drying, wait for at least 72 hours before playing for the first time in a new GreenSet® acrylic resin surface.

## Legal Notice

GreenSet Worldwide SL considers that the information, recommendations and suggestions, especially those relating to the application and end-use of the GreenSet® products contained in this document, are reliable. They are given in good faith on the basis of our current knowledge and experience with products when properly stored, handled and applied under normal conditions. However, since site conditions, sub-bases and use are beyond our control, GreenSet Worldwide SL disclaims all liability for the use or misuse of our products and finished surfaces or by the interpretation of the information contained in this document; no express or implied warranty is given. The property rights of GreenSet Worldwide SL and third parties must be observed. Users should always refer to the latest copy of the Material Safety Data Sheet of each of the products, copies of which will be provided on request.

