



**TECHNICAL SPECIFICATIONS FOR TENNIS COURT & RECREATIONAL
SPORT SURFACING, SECTION 32 18 23 53**

1: GENERAL DESCRIPTION

A. MAPEI SPORTS FLOORING DIVISION provides this technical specification as a guideline only. Consultation with a professional architect or engineer is always recommended for a project specific specification. **Mapecoat TNS Remove** is a multilayered acrylic-based system used in combination with the unique **Mapecoat TNS RP** self-laying, fiber-reinforced, elastic PVC underlayment. It is a roll-out-mat, 100% loose-lay system that is the most versatile solution available today and can be used for many applications including:

- ✓ A cost-effective solution as an alternate to reconstruction of older problematic substrates.
- ✓ Over concrete substrates with vapor pressure issues, as it is designed to move vapor pressure horizontally.
- ✓ A temporary system: Seams can be cut, rolled up, removed and stored from venue to venue.

Like all Mapecoat TNS systems, it delivers durable, beautiful, and consistent playing surfaces that can be tailored to the desired speed and ball bounce.

SECTION 02790 (32 18 23.53)

TENNIS COURT & RECREATIONAL SPORTS SURFACING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tennis Court & Recreational Sports Surfacing for Asphalt and Concrete Surfaces Systems.

1.2 RELATED REQUIREMENTS

- A. Section 02975 (32 01 17.63) – Tennis Court Crack Repair System: Repairing cracks in asphalt tennis courts.
- B. Section 03300 (03 30 00) – Cast-in-Place Concrete.
- C. Section 03400 (03 40 00) – Precast Concrete.
- D. Section 32 13 13 - Concrete Paving: Concrete pavement. General requirements for Portland-cement concrete materials, including admixtures and curing materials
- E. Section 32 17 23.13 - Painted Pavement Markings: Court marking for tennis courts.

1.3 REFERENCE STANDARDS

- A. American Sports Builders Association (ASBA).
- B. United States Tennis Association (USTA) Rules of Tennis.
- C. International Tennis Federation (ITF).
- D. National Asphalt Pavement Association (NAPA).
- E. NFHS (Guide) - Court and Field Diagram Guide; current edition.

1.4 SUBMITTALS

- A. Comply with Section 01330 (01 33 00) – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including surface and crack preparation and application instructions.
- C. Samples: Submit manufacturer's color samples of color coating.
- D. Test Reports:
 - 1. Submit independent test results for solar reflectance index.
 - 2. Submit independent test results for 2000 Hour ASTM G154, accelerated weathering UV test, to demonstrate long-term durability and fade resistance.
 - 3. Submit independent test results for 2000 Hour, accelerated weathering ASTM G155 Xenon Arc test, to demonstrate long-term fade resistance and quality of pigment.
 - 4. Elongation at failure – DIN 53504: 140%
 - 5. Tensile Strength – DIN 53504: 100 psi (0.7 N/mm²)
- E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- F. Manufacturer's Project References: Submit manufacturer's list of successfully completed asphalt tennis court surface color-coating system projects, including project name, location, and date of application.
- G. Applicator's Project References: Submit applicator's list of successfully completed asphalt tennis court surface color-coating system projects, including project name, location, type, and quantity of color-coating system applied, and date of application.
- H. Warranty Documentation: Submit manufacturer's standard warranty.
- I. Authorized Installer Certificate: Submit manufacturer's authorized installer certificate.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer regularly engaged, for the past 5 years, in manufacture of asphalt tennis court surface color-coating systems of similar type to that specified.
2. United States owned company.
3. Member: ASBA.
4. Manufacturer has surfaces that are classified by the International Tennis Federation's (ITF's) pace classification program.
5. All the facilities where Mapecoat TNS systems are manufactured have an ISO 9001 and ISO 14001 certified management system

B. Applicator's Qualifications:

1. Applicator regularly engaged, for the past 3 years, in application of tennis court surface color-coating systems of similar type to that specified.
2. Employ persons trained for application of tennis court surface color-coating systems.
3. Applicator must be authorized installer of the surfacing brand used.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:

1. Store and handle materials in accordance with manufacturer's instructions.
2. Keep materials in manufacturer's original, unopened containers and packaging until application.
3. Store materials in clean, dry area indoors.
4. Store materials out of direct sunlight.
5. Keep materials from freezing.
6. Protect materials during storage, handling, and application to prevent contamination or damage.
7. Close containers when not in use.
8. Retain manufacturer batch codes on each container and application dates, for warranty purposes.

1.7 AMBIENT CONDITIONS

A. Do not apply asphalt and concrete tennis court surface color-coating system when air or surface temperatures are below 50°F (10°C) during application or within 24 hours after application.

- B. Do not apply asphalt and concrete tennis court surface color-coating system when rain is expected during application or within 24 hours after application.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Acceptable Manufacturer: MAPEI Corporation, 1144 E. Newport Center Rd., Deerfield Beach, FL 33442, USA; Toll-Free Tel: 1-800-992-6273; Fax: 954-246-8805; Email: TechServiceRequests@mapei.com; Web: www.mapei.com.
- B. Acceptable Manufacturer: MAPEI Inc., 2900 Francis-Hughes, Laval, QC, H7L 3J5, Canada; Toll-Free Tel: 1-800-361-9309; Fax: 450-901-0196; Email: TServicesCA@mapei.com; Web: www.mapei.com.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.

All other brands must be pre-approved by the architect/owner, 7 days prior to the bid date. If submitting another brand, bidder must furnish copies of all submittal documents under section 1.4.

2.2 MATERIALS

- A. Asphalt Tennis Court Surface Color-Coating System: MAPEI Tennis Courts & Recreational Sports Surfacing Systems.

1. SURFACE PREPARATION:

- i. **Ultrabond Turf PU 1K-HV:** 1-component, fast-set urethane patching compound
VOCs (Rule #1168 of California's SCAQMD): 4 g/L
Joint/bond strength – EN 12228 and EN 13744: > 25 N per 100 mm
- ii. **Mapecoat TNS Patch PU 2K:** 2-component, fast-set, urethane patching compound with sand; can be used in time-sensitive situations for properly prepared deep depressions, defects, and cracks.
VOCs (Rule #1168 of California's SCAQMD): 2 g/L
- iii. **Mapectex P1:** For concrete expansion/control joints; high-performance, non-sag, one-component, elastomeric, moisture-cured, polyurethane sealant and adhesive.
Meets ASTM C920; Type S; Grade NS; Class 25; Uses NT, T, M, G, A and O; TT-S-00230C, Type II, Class A
- iv. **Epojet or Epojet LV:** For concrete cracks. high-strength, two-component, 100%-solids, low-viscosity, epoxy resin for pressure injection and sealing of cracks in structural concrete, masonry, and wood.

Meets ASTM C881, Types I, II and IV, and Grade 1

2. ADHESIVES

- i. **Ultrabond Turf Tape:** Single-layer tape that provides excellent tensile and shear strength when combined with Ultrabond Turf PU 2K.
- ii. **Ultrabond Turf PU 2K:** High-performance, 2-component urethane adhesive specifically designed for bonding of high-performance sports installations.
 - i. VOCs (Rule #1168 of California's SCAQMD): 2 g/L
- iii. **Mapectact MRT:** Double-sided seam tape
 - i. VOCs (Rule #1168 of California's SCAQMD): Adhesive tape is exempt from SCAQMD Rule #1168

3. UNDERLAYMENT CUSHION MAT

- i. **Mapectact TNS RP:** Self-laying, fiber-reinforced, elastic PVC underlayment for Mapectact TNS Remove system
 - i. Thickness: 0.15" (3.6 mm)
 - ii. Weight: 0.88 lbs./sq. ft. (4.3 kg/m²)
 - iii. Dimensional stability (%): < 0.2
 - iv. Shore A hardness: 70

4. BASE COAT

- i. **Mapectact TNS Base Coat Binder:** 100% acrylic latex; interior and exterior fast-set non-textured flexible acrylic base coating with good filling capacity used to even out asphalt substrates prior the topcoats.
 - i. Tensile strength – DIN 53504: 100 psi
 - ii. Elongation at failure – DIN 53504: 90%
 - iii. VOCs: 50 g/L
- ii. **Mapectact TNS Base Coat Gray** Fast-setting acrylic cushion coating fortified with rubber granules that provide shock force reduction and resiliency for Mapectact TNS systems
 - i. Tensile strength – DIN 53504: 75 psi
 - ii. Elongation at failure – DIN 53504: 63%
 - iii. VOCs: 50 g/L

5. BASE COLOR COAT

- i. **Mapectact TNS Base Color:** Premium interior and exterior acrylic base color coating. It is used as a base color coat for Mapectact TNS systems.
 - i. Tensile strength – DIN 53504: 100 psi
 - ii. Elongation at failure – DIN 53504: 140%
 - iii. VOCs: 50 g/L

5. TOPCOAT

- i. **Mapecoat TNS Finish 1, 3 and 4:** ITF speed rating certified; premium interior and exterior acrylic textured top coating. Used as color topcoat for Mapecoat TNS systems.
 - ii. Certified International Tennis Federation (ITF) 1, 3, 4
 - iii. Tensile strength – DIN 53504: 100 psi
 - iv. Elongation at failure – DIN 53504: 140%
 - v. VOCs: 50 g/L

6. GAME LINES

- i. **Mapecoat TNS Line Seal:** Fast-setting, ready-to-use premium, acrylic, transparent paint that seals the edges of the masking tape before the application of Mapecoat TNS Line Tex.
 - i. Tensile strength – ASTM D638: 130 psi
 - ii. Elongation at break – ASTM D638: 650%
 - iii. VOCs: 50 g/L
- ii. **Mapecoat TNS Line Tex:** Fast-setting, ready-to-use premium acrylic, textured paint for marking sport courts and urban areas for all Mapecoat TNS system surfaces.
 - i. Tensile strength – ASTM D638: 130 psi
 - ii. Elongation at break – ASTM D638: 650%
 - iii. VOCs: 50 g/L

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect asphalt substrate per ASBA guidelines for proper slopes, drainage and soundness of the substrate and surface.
- B. Inspect the concrete substrate per ASBA guidelines for proper slopes and drainage as well as the presence of an intact vapor barrier is present and CSP 3 profile (medium broom finish). If there are known drainage problems, it is ideal to identify and mark them after a hard rain, prior to resurfacing, but courts can be flooded alternately at beginning of the project.

3.2 PROJECT CONDITIONS, LIMITATIONS AND OVERSIGHTS

- A. Asphalt and concrete substrates shall be allowed to cure properly: Asphalt for 15-25 days minimum, concrete for 28 days minimum.
- B. The substrate shall be clean and dry before coatings are applied. Substrate surface should be free of oil, grease, dust, dirt and any other foreign materials that negatively affect bonding.
- C. Do not apply unless surface temperatures are 50°F (10°C) and rising.
- D. Do not apply when rain is imminent or if extremely high humidity will prevent drying.

- E. Do not apply if the surface temperature is above 140°F (60°C). Water used on the project shall be fresh, potable and as cold as possible in hot-weather conditions. (Ice water should be used in extreme hot temperatures.)
- F. If there are any known drainage problems, it is ideal to identify and mark them after a hard rain, prior to resurfacing.

3.3 SURFACE PREPARATION SYSTEM

The **Mapecoat TNS Remove system** is 100% loose-lay. The only requirements for the existing substrate is that it is flat, hard and clean.

If the surface needs filling and prep to make it flat, follow normal procedures for preparing the substrate:

A. New concrete and existing coated surfaces:

Clean the substrate surface. The substrate surface shall be free of grease, oil, dust, dirt, and any other foreign matter that could inhibit bond before the work is started. Depending on the condition of the surface, three methods are typical:

1. Mechanical sanding machine (for existing acrylic coated surface)
2. Mechanical grinding machine (for existing or new concrete without a broom finish)
3. Pressure-wash as needed (at not greater than 1,500 psi).

Non-porous new concrete or sound concrete substrates with oil or grease stains must be thoroughly washed and cleaned with **Planiprep SA** per instructions. Rinse several times or power-grind to the proper depth to remove all contaminants. Then allow the concrete substrate to dry properly.

Any depressions holding water deep enough to cover the thickness of 1/16" (1.6 mm) shall be outlined and leveled to match existing grades with a product below per Technical Data Sheet (TDS) directions.

- i. **Mapecoat TNS Base Coat White** (minor surface imperfections)
- ii. **Mapecoat TNS Patch PU 2K** (deep patches/repairs; time-sensitive; fast cure)

All cracks should be opened with a crack chaser and/or tuck point to clean the crack walls and create a void large enough to fill with quality materials. Apply the appropriate material below per TDS directions.

- i. **Epojet / Epojet LV** (concrete cracks)
- ii. **Mapecoat TNS Patch PU 2K** (existing asphalt cracks; time-sensitive; fast cure)

For expansion/control joints, use the material below per TDS directions.

- i. **Mapectex P1** (concrete joint sealant)

Note: For larger cracks, the proper diameter backer rod should be placed into the void prior to applying the appropriate crack filler material.

B. New or existing asphalt surfaces:

Clean the substrate surface. The substrate surface shall be free of grease, oil, dust, dirt and any other foreign matter that could inhibit bond before starting the work. Depending on the condition of the surface, two methods are typical:

1. If necessary, pressure-wash as needed (not greater than 1,500 psi).
2. If necessary, flood the surface. Any depressions holding water deep enough to cover the

thickness of a nickel coin (1/16" or 1.6 mm) shall be outlined and leveled to match existing grades with a product below per TDS directions.

- i. **Mapecoat TNS Base Coat White** (minor surface imperfections)
- ii. **Mapecoat TNS Patch PU 2K** (deep patches/repairs; time-sensitive; fast cure)

All cracks should be opened with a crack chaser and/or tuck point to clean the crack walls and create a void large enough to fill with quality materials. Apply appropriate material below per directions on TDS.

- i. **Ultrabond Turf PU 1K** (cartridge) (asphalt cracks)
- ii. **Mapecoat TNS Patch PU 2K** (asphalt cracks; time-sensitive; fast cure)

Note: For larger cracks, the proper diameter backer rod should be placed into the void prior to applying the appropriate crack filler material.

3.4 PLAYING SURFACE SYSTEM APPLICATION

Note: The contractor should provide the inspector or owner's representative mixing instructions for all materials.

A. Follow the manufacturer's instructions for installing **Mapecoat TNS RP**:

It is recommended to roll out the **Mapecoat TNS RP** vinyl mat, to allow it to acclimate and release memory of being rolled up. In colder weather, this will take longer. After the acclimation period, properly position **Mapecoat TNS RP** mats side by side, leaving a 1/2" (12 mm) gap between mats. Mark the center of all seams on the substrate (chalk line). Fold back the mats of **Mapecoat TNS RP** to make room for the seam tape to be placed on substrate.

B. Place the **Ultrabond Turf Tape 100** (for permanent application only) on the substrate, centered between seams so that both sides may be bonded equally in place with **Ultrabond Turf PU 2K**. Before applying the adhesive, make sure there are no loose or weak areas in the surface.

C. Apply one (1) coat of **Ultrabond Turf PU 2K** 2-component polyurethane adhesive onto the **Ultrabond Turf Tape 100**, using a 1/8" x 1/8" x 1/8" (3 x 3 x 3 mm) trowel. Approximate rate coverage is 85 to 95 square feet per gallon, or 7.9 to 8.8 m² per 3.79 L. Fold the **Mapecoat TNS RP** into the **Ultrabond Turf PU 2K** while it is still wet (within one hour at 73°F or 23°C) and carefully massage the joints so they come into full contact with the adhesive and to remove any air bubbles.

C. Alternately (for temporary application only), apply **Mapectact MRT** double-sided tape centered between the rolled-back mats. Remove the top film to expose the adhesive and roll mats back into the adhesive tape. Massage the joints as noted above for full contact to adhesive and to remove any air bubbles.

Note: If the mat is not perfectly flat, put weights (such as bags of sand or other material) on the uneven areas, along the joints and at the ends of the mat. Do not kneel directly on the floor when massaging the sheets, instead kneeling on pieces of polystyrene or

plywood. Make sure gaps are sealed with **Ultrabond Turf PU 2K** (for permanent application) or **Mapecoat TNS Base Coat Gray** (for temporary application) so that the surface is perfectly even. Once all the joints in the **Mapecoat TNS RP** have been bonded, you may move on to the next step.

- D. Using a neoprene rubber squeegee, apply one (1) coat of **Mapecoat TNS Base Coat Binder** acrylic resurfacer. This concentrated material should be mixed with 20% water and clean bagged 40 to 60 mesh silica sand at a rate of 1.31 to 1.75 lbs. per gallon, or 0.60 to 0.80 kg per 3.79 L. Allow to dry completely before the next application. Concentrated application rate averages 160 to 170 square feet per gallon, or 17.7 to 18.8 m² per 3.79 L.
- E. Using a neoprene rubber squeegee, apply one (1) coat of **Mapecoat TNS Base Coat Gray** diluted with 20% water. Allow each application to dry and cure completely before the next application. Concentrated application rate averages 65 to 75 square feet per gallon (rate per each coat), or 6.04 to 6.97 m² per 3.79 L. A small amount of additional water ($\leq 10\%$) can be added on hot days when material is drying too quickly.

Inspect the entire surface. All defects should be scraped and/or machine sanded to remove any ridges. Blow and broom off any loose matter

- F. Using a neoprene rubber squeegee, apply one (1) coat of **Mapecoat TNS Base Color** diluted with 20% water. (Colors are pre-determined by owner.) The application rate for **Mapecoat TNS Base Color** is 110 to 120 square feet per gallon, or 10.2 to 11.1 m² per 3.79 L. Allow the application to dry and cure completely before the next application. A small amount of additional water ($\leq 5\%$) can be added on hot days when material is drying too quickly.
- G. Using a neoprene rubber squeegee, apply one (1) coat of **Mapecoat TNS Finish 1, 3 or 4**, diluted with 20% water. (Colors are pre-determined by owner.) The application rate for **Mapecoat TNS Finish 1, 3 or 4** is 110 to 120 square feet per gallon, or 10.2 to 11.1 m² per 3.79 L.
- H. If necessary, an optional one (1) coat of **Mapecoat TNS Finish 1, 3 or 4** should be applied. The rate is 130 to 140 square feet per gallon, or 12.1 to 13.0 m² per 3.79 L. Allow the application to dry and cure completely before the next application. A small amount of additional water ($\leq 5\%$) can be added on hot days when material is drying too quickly.

3.5 APPLICATION OF LINE MARKINGS

- A. Lines shall be carefully measured and marked with chalk in accordance with ASBA and specific sports guidelines. (Note: Do not assume existing lines are measured properly on resurfacing work.)
- B. All lines are to be applied by painting between high-grade masking tape with a brush or roller. No spraying of lines is allowed.
- C. Prime masked line with one coat of **Mapecoat TNS Line Seal**. Allow to dry completely

before continuing. Application rate is 1 gallon (3.79 L) per tennis court.

- D. Paint lines with **Mapecoat TNS Line Tex** paint. Application rate is 1 gallon (3.79 L) per tennis court. Allow application to dry.
- E. Remove masking tape immediately when dry. Leaving it in place too long could leave residue on the court surface.

3.6 PROTECTION

- A. Allow a minimum of 24 to 72 hours of drying time for outdoor courts before opening them for play. Indoor courts will take longer to dry and cure, and should dry within a minimum of 7 days before play is allowed, depending on the atmospheric conditions in the building.

END OF SECTION