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## Submittal & Specification Safepour™ “Elite” TPV (.5 - 1.5mm)

**Project:** [Enter Specified]

**Product: Safepour “Elite” TPV Poured-In-Place Rubber Playground Safety Surfacing**

Two (2)-layer, seamless system; with a base layer comprised of 100% post-consumer recycled SBR rubber (Styrene Butadiene Rubber) and polyurethane binder.

Top layer wear course of TPV (Thermo Plastic Vulcanized) rubber and Aliphatic UV stable polyurethane binder.

This system is to use the following:

Colors: [specifier note % mix] of each color by volume

[color] [%] size .5 - 1.5mm “small” granule

**Safepour “Elite” TPV Poured-In-Place Rubber Playground Safety Surfacing Product:**

“SAFEPOUR” is a safe, durable, and low-maintenance surfacing system for today’s playgrounds and water parks. SAFEPOUR “Elite” TPV Poured-In-Place is a high-density, 2-layer, seamless system comprised of a base layer of 100% post-consumer recycled SBR rubber (Styrene Butadiene Rubber) and polyurethane binder and a top layer of TPV (Thermo Plastic Vulcanized) rubber and Aliphatic UV Stable polyurethane binder to create a porous uniform surface. SAFEPOUR’s “Elite” TPV is a proprietary product utilizing the highest quality components available to the safety surfacing industry.

SAFEPOUR is mixed and applied on the job site and can be installed over a compacted sub-grade of base rock, asphalt, or concrete in any design configuration and dimensions, with thickness typically based on required critical fall height. SAFEPOUR is IPEMA (International Play Equipment Manufacturers Association) certified. Additional product and test data can be found in the Specifications below. IPEMA certificates available at [www.ipema.org](http://www.ipema.org)

***Installation:***

Installation is a critical component of any poured-in-place system. Playgrounds Unlimited’s experience with various products and conditions in Northern California has helped our company to develop systematic installation techniques that consider mix timing, temperature, humidity, and sub-base conditions, enabling Playgrounds Unlimited to provide the highest quality, uniform, and consistent installations in the poured-in-place industry.

# SAFEPOUR™

## “Elite” TPV Poured-in-Place (PIP) Colors (.5–1.5mm granule)

The Safepour Poured-In-Place Rubber Safety Surfacing System, designed for indoor and outdoor play areas, uses a proprietary blend of the highest-quality, tested and verified, industry-leading components. “Elite” TPV offers superior UV stability. Our customers are ensured consistent, vibrant-colored rubber granules that provide durability, reliability, and long-lasting aesthetics.

A full range of premium, vibrant, 100% color mix colors are available to choose from, enabling our customers to create custom, unique color combinations and blends. Aliphatic UV stable polyurethane binder is always used with our “Elite” TPV system to maintain high-quality color strength. Use the PIP color mixer at [rosehillssportsandplay.com/colour-mixer/](http://rosehillssportsandplay.com/colour-mixer/) for ideas of what your color blend of choice might be.



**Cream**  
RH31



**Beige**  
RH30



**Bright Yellow**  
RH41



**Mustard**  
RH40



**Orange**  
RH50



**Standard Red**  
RH01



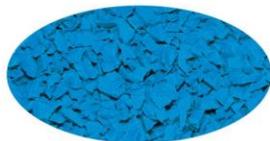
**Bright Red**  
RH02



**Funky Pink**  
RH90



**Purple**  
RH21



**Standard Blue**  
RH20



**Light Blue**  
RH22



**Turquoise**  
RH26



**Dark Green**  
RH12



**Standard Green**  
RH10



**Bright Green**  
RH11



**Brown**  
RH32



**Dark Gray**  
RH60



**Light Gray**  
RH61



**Pale Gray**  
RH65



TPV “Elite” colors may have extended lead times as long as 8 to 12 weeks. Colors may vary slightly from depicted chart.

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## Safepour™ “Elite” TPV Specification

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# Safepour™ “Elite” TPV 2-Layer Poured-In-Place Rubber Playground Safety Surfacing Specification

## PART 1 – General

### 1.01 POURED-IN-PLACE RUBBER PLAYGROUND SURFACING

Safepour playground surfacing is a two (2)-layer, seamless system comprised of a base layer of 100% post-consumer recycled SBR rubber (Styrene Butadiene Rubber), polyurethane binder, with a top layer of TPV (Thermo Plastic Vulcanized) rubber and Aliphatic polyurethane binder. The porous system is mixed and field-applied in any configuration and dimensions with thickness to achieve required critical fall heights. Safepour is IPEMA (International Play Equipment Manufacturers Association) certified.

### 1.02 SAFETY & TESTING

American Society for Testing and Materials (ASTM):

- A. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension.
- B. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- C. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
- D. ASTM D2859 Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- E. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
- F. ASTM F1292 Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment.
- G. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

### 1.03 SPECIFIC DEFINITIONS

- A. **Critical Fall Height:** Standard measure of shock attenuation. According to the United States Consumer Product Safety Commission Public Playground Safety Handbook, critical fall height is defined as “the fall height below which a life-threatening head injury would not be expected to occur.”

- B. **Fall Height:** According to the United States Consumer Product Safety Commission Public Playground Safety Handbook, fall height is defined as “the vertical distance between the highest designated play surface on a piece of equipment and the protective surfacing beneath it.” The fall height of playground equipment should not exceed the critical height of the protective surfacing beneath it.

#### 1.04 SYSTEM DESCRIPTION

Provide a two (2)-layer SBR rubber, aliphatic polyurethane binder, and TPV rubber playground safety surfacing system which has been designed, manufactured, and installed to meet the following criteria:

##### **Performance Requirements:**

- A. Shock attenuation (ASTM F1292) Gmax - Less than 200
- B. Head Injury Criteria (HIC) - Less than 1000
- C. Flammability (ASTM D2859): Pass.
- D. Tensile Strength (ASTM D412): 60 psi (413 kPa).
- E. Tear Resistance (ASTM D624): 140%.
- F. Water Permeability: 0.4 gal/yd<sup>2</sup>/second.
- G. Accessibility: Comply with requirements of ASTM F1951
- H. Dry Static Coefficient of Friction (ASTM D2047): 1.0.
- I. Wet Static Coefficient of Friction (ASTM D2047): 0.9.
- J. Dry Skid Resistance (ASTM E303): 89.
- K. Wet Skid Resistance (ASTM E303): 57.

#### 1.05 APPROVALS

Safepour Poured-in-Place Playground Rubber Safety Surfacing is IPEMA certified. IPEMA certificates available at [www.ipema.org](http://www.ipema.org) Contact manufacturer for information on approvals by major owners, agencies, and other industry entities.

Environmental Consideration: this system makes extensive use of post-consumer recycled tire rubber as a major component.

#### 1.06 SUBMITTALS

- A. **General:** Comply with submittal procedures. Submit listed submittals in accordance with conditions of the contract and the order processing procedures outlined in Playgrounds Unlimited’s Control Assurance Manual.
- B. **Coordination Drawings:** Layout plans and elevations drawn to scale for the coordination of playground equipment with playground safety surface systems. Indicate playground equipment locations, use zones, fall heights, extent of protective surfacing, depths of material, critical heights, sub-base materials, hardware, edge details, and drainage.
- C. **For Each Playground Poured-in-Place System:** Include materials, cross sections, drainage, installation, penetration details, and edge termination.

- D. **Color Samples for Initial Selection:** Manufacturer's color charts and/or samples indicating the full range of colors are available. Premium and custom color combinations may have extended lead times as long as 8- to 12-weeks.
- E. **Product Data:** Submit manufacturer's product data and installation instructions, including cleaning and preventative maintenance instructions. Include a list of materials and components to be installed as part of the system (by weight, volume, and recommended coverage as applicable), manufacturer's name, shipment date, storage requirements, and chemical composition.
- F. **Verification Samples:** Submit manufacturer's standard verification samples of 9" x 9" minimum.
- G. **Quality Assurance/Control Submittals:** Submit the following:
1. Certificate of qualifications of the surfacing installer.
  2. As applicable, project references, including contact information, where products similar to those specified are installed and have been in successful service for a minimum period of five (5) years. Date of installation and any service or maintenance to be noted.
  3. A signed statement attesting the surfacing meets the requirements of ASTM F1292 for a head-first fall from the highest accessible portion of the installed play equipment. The impact attenuating qualities of the surfacing system shall not be diminished in the surface areas covering hardware. The statement shall include the name and project location, the manufacturer/installer's name, address, phone number, and testing data as applicable (testing company, date of testing, test results).
- H. **Closeout Submittals:** Submit the following:
1. Warranty documents specified herein.
  2. Maintenance documents specified herein.
  3. Certificate of Insurance document(s) shall be provided by the Poured-in-Place Safety Surfacing System manufacturer, covering both product and general liability of not less than \$1,000,000. The issuing underwriter shall be AA rated or better.

## **1.07 QUALITY ASSURANCE**

- A. Utilize the manufacturer's installation crew that has been trained and certified, and has experience with other projects of the same scope and scale of the work described.
- B. Safepour is IPEMA certified which requires the mfg. to maintain and update their Control Assurance Manual.

## **1.08 DELIVERY & STORAGE**

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store materials in a clean, dry location, protected from weather and deterioration, exposure to harmful environmental conditions, and at a minimum temperature of 40 degrees F and a maximum temperature of 90 degrees F. Comply with any other manufacturer's written instructions for temperature requirements for storage.

## 1.09 PROJECT SITE CONDITIONS

- A. Install surfacing on a dry sub-surface with no prospect of rain within the initial drying period, and within 40 degrees F and 90 degrees F.
- B. There are three (3) sub-base applications acceptable for Safepour poured-in-place applications:
- Installations may be performed over concrete with a minimum of seven (7) days cure time and as much as 30 days dependent on conditions and temperature.
  - Installations may be performed over fully-cured (30 days) asphalt.
  - Installations may be performed over 95% crushed aggregate/stone base, typical thickness of 4- to 6-inches to allow for proper compaction rates. Also refer to the “*Crushed Stone Base Preparation for Poured-in-Place Playground Surface Installations*” document for additional construction guidelines.

## 1.10 LIMITATIONS

Some chemicals may cause damage to the playground surface and should be avoided. These include disinfectants, concentrated chlorine bleach, gasoline, diesel fuel, hydraulic and lubricating oils, acids, and organic solvents.

Though not commonly used in water play areas, pool surrounds, and similar applications, dissolved minerals and other chemicals (hydrochlorides) may cause surface discoloration over time. This condition, should it occur, is not considered to be a product failure.

## 1.11 MAINTENANCE

Hose off the entire playground surface to remove food, drink, sand, dirt, and loose debris. A pressure washer may be used at a setting not exceed 1500 psi (10 MPa) pressure. Do not place the spray nozzle closer than 12 inches to the surface. Repeat the process on an as needed basis. While the surface is still damp from hosing, apply a mixture of a mild household or commercial detergent and water using a garden pump sprayer to an area approximately 4-foot x 4-foot in size. Be sure to follow directions for use on the cleaner you choose from your local supplier. Scrub thoroughly using a 10-inch medium bassine bristle scrub brush. Repeat this process until the entire surface has been completely and thoroughly cleaned or as necessary on heavily stained areas. Once the entire surface has been cleaned, rinse thoroughly using a garden hose with spray nozzle attachment. Dependent on the use of the product: high versus low traffic, natural wear and tear, and exposure to elements, it is recommended to increase longevity and performance of the surfacing to reseal the pad with Safepour polyurethane following the cleaning process above a minimum of every two (2) years

Should additional maintenance recommendations be necessary, refer to the “*Poured-in-Place Preventative Maintenance Guidelines*” or contact Playgrounds Unlimited. Also refer to the project contract document for any further conditions or project warranty provisions.

Adherence to all of the above requirements will ensure maximum longevity and help maintain the original appearance of the Safepour Elite TPV surface. Failure to read and follow instructions explicitly will result in damage to the surface and termination of the Safepour Elite TPV warranty.

## 1.12 WARRANTY

The playground surface shall be guaranteed against defects in product quality and material for a period of no less than seven (7) years from the date of completion of the work. See also specifier contract documents. Ordinary wear and tear, abuse, or neglect will be excepted. Warranty coverage is provided by Playgrounds Unlimited. Maintenance requirements must be maintained for the duration of the warranty period. Proper drainage is critical to the longevity of the Safepour surfacing system. Inadequate drainage will cause premature breakdown of the poured system in affected areas and void the warranty.

## 1.13 TECHNICAL SERVICES

For technical assistance in California, contact Playgrounds Unlimited at 408-244-9848.

## PART 2 – PRODUCTS

The playground surface shall consist of synthetic materials meeting the requirements of this Specification. Proprietary products/systems; poured-in-place playground safety surfacing system, including the following:

### 2.01 BASE LAYER

- A. Safepour Primer: Polyurethane.
- B. SBR (Styrene Butadiene Rubber) Color: Black.
- C. Safepour Poured-In-Place Base: Blend strand 100% recycled SBR (Styrene Butadiene Rubber) and polyurethane to the proper ratios based on weight: 86% SBR rubber and 14% polyurethane (as divided by total combined weight) or (16+% when urethane divided by SBR weight).
- D. Base Thickness: May vary as determined by the fall height of the play equipment and as required to meet ASTM F1292 requirements for critical fall height. Base thickness for fall height as follows: 4'= 1.5", 5'=2.0", 6'=2.5", 7'=3.0", 8'=3.5", 9'=4.0", 10'=4.5", 11'=5.0", 12'=5.5" \*\*\*ADD .5" Top Coat for Total System Thickness.

### 2.02 TOP LAYER

- A. Safepour Primer: Polyurethane.
- B. Safepour TPV (Thermo Plastic Vulcanized) rubber; offered in two one size:  
"Small Granule" .5 - 1.5 mm.
- C. Colors: RH01 Standard Red, RH02 Bright Red, RH40 Mustard, RH30 Beige, RH41 Bright Yellow, RH11 Bright Green, RH10 Standard Green, RH12 Dark Green, RH26 Teal, RH22 Light Blue, RH20 Standard Blue, RH23 Azure Blue, RH21 Purple, RH31 Cream, RH32 Brown, RH65 Light Gray, RH60 Dark Gray, RH61 Medium Gray. Custom colors combinations available (specify).

- D. Safepour Poured-In-Place Top: Blend of TPV and polyurethane. 82% rubber and 18% polyurethane (as divided by total combined weight) or (22+% when urethane weight divided by TPV weight).
- E. Nominal thickness of TPV top layer 0.5", with a minimum 0.325" and a maximum 0.625".
- F. System Total Thickness: Thickness may vary by design, however; the fall height of the play equipment should not exceed the critical height of the protective surfacing beneath it as required to meet ASTM F1292 test standards for Gmax and HIC. Total thickness for fall height as follows: 4' Fall Height = Requires 2.0" Thickness, 5'=2.5", 6'=3.0", 7'=3.5", 8'=4.0", 9'=4.5", 10'=5.0", 11'=5.5", 12'=6.0"
- G. Top Layer Urethane is a proprietary formula Aliphatic UV stable polyurethane binder, which does not yellow from ultra violet exposure to create a vivid and durable finish. Consult manufacturer for more information.

### **2.03 PRODUCT SUBSTITUTIONS**

No substitutions are permitted. The Safepour system is a proprietary blend of materials combined with more than 20 years of experience and specific installation techniques.

## **PART 3 – EXECUTION**

Comply with the instructions and recommendations of the surfacing manufacturer.

### **3.01 EXAMINATION**

- A. Verification of Site Conditions: Verify the substrate conditions are suitable for installation of the poured-in-place surfacing. Do not proceed with installation until unsuitable conditions are corrected.
- B. Drainage: Proper drainage is critical to the longevity of the Safepour surfacing system. Inadequate drainage will cause premature breakdown of the poured system in affected areas and void the warranty.

### **3.02 PREPARATION**

- A. Existing Substrate Preparation: Remove any loose or delaminated material that would be deleterious to application of the new surface. Fill cracks in existing concrete with cementitious patching compound.
- B. Surface Preparation: Using a brush or short nap roller, apply primer to the substrate perimeter and any adjacent vertical barriers (such as playground equipment) that will contact the surfacing system at the rate of 300 ft<sup>2</sup>/gal.

### **3.03 INSTALLATION**

The Safepour components/system shall be installed by Playgrounds Unlimited, a certified installer, familiar with product components and trained in application techniques by the manufacturer.

A. Do not proceed with playground surfacing installation until all applicable site work, including substrate preparation, fencing, playground equipment installation, and other relevant work, has been completed. Consider dust and traffic in adjacent work areas that may impact surfacing finish.

B. Base Layer Installation:

1. Using screeds and hand trowels, install the base layer at a consistent density of 29 pounds, 1 ounce per cubic foot to the specified thickness.
2. Allow the base layer to cure for sufficient time so indentations are not left in the base layer from applicator foot traffic or equipment.
3. Do not allow foot traffic or use of the base layer surface until it is sufficiently cured.

C. Primer Application: Using a brush or short nap roller, apply primer to the base layer perimeter and any adjacent vertical barriers that will contact the surfacing system at the rate of 300 ft<sup>2</sup>/gal.

D. Top Layer Installation:

1. Using a hand trowel, install top layer at a consistent density of 58 pounds, 9 ounces per cubic foot to a nominal thickness of 0.5”.
2. Allow the top layer to cure up to 72 hours with aliphatic binder (dependent on weather conditions).
3. At the end of the minimum curing period, verify the surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface.
4. Do not allow foot traffic or use of the surface until it is sufficiently cured.

### **3.04 PROTECTION**

Protect the installed surface from damage resulting from subsequent construction activity on the site.



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## Safepour™ “Elite” TPV Poured-in-Place Fall Height to Required Thickness Chart

<u>PIP Model Number</u>	<u>Fall Height (feet)</u>	<u>Required Minimum Thickness (inches)</u>
SPE TPV 4	4' and below	2" minimum
SPE TPV 5	5'	2.5"
SPE TPV 6	6'	3"
SPE TPV 7 **	7'	3.5"
SPE TPV 8 **	8'	4"
SPE TPV 9 **	9'	4.5"
SPE TPV 10 **	10'	5"
SPE TPV 11 **	11'	5.5"
SPE TPV 12 **	12'	6"

\*\*Safepour has increased the required “minimum” thickness by (+).5” for all models 7’ and above based on the IPEMA recommendation to install a surface that performs well below the passing limits in the ASTM F1292 standard.

**Determine the fall height** of play equipment and refer to the chart above to determine the thickness of protective surfacing required to meet the minimum critical fall height impact criterion.

- Fall Height can be determined by measuring the vertical distance between a designated play surface and the surface beneath it; the distance from the top of decks, slide entrance, play events, and overhead upper body equipment to the top of play surface finish grade.
- Fall Height or CFH of play equipment is often provided on the play equipment manufacturers drawing or, included in architectural plans and specifications for reference, be sure to field verify heights.

### **Definitions**

\***Fall Height:** the vertical distance between a designated play surface and the surface beneath it.

\***Designated Play Surface:** any elevated surface for standing, walking, sitting, or climbing, or a flat surface greater than 2.0” wide by 2.0” long having less than 30\* angle from horizontal.

\***Critical Fall Height (CFH):** the highest theoretical drop height from which a surface meets the impact attenuation performance criterion of ASTM 1292-17.

\*The Critical Fall Height (CFH) of surfacing shall not be less than the fall height of the play equipment to be compliant with ASTM F1292.