Rosehill TPV®
SPECIFICATION GUIDE

Rosehill TPV®

Surface DESIGNS

Advanced Surface Solutions for Play, Sport & Leisure.

Engineering Excellence Since 1988.

Rosehill Group is a UK-based manufacturer established in 1988, with nearly 40 years of experience developing advanced polyurethane and rubber technologies for demanding real-world applications. We specialise in the development and manufacture of coatings, adhesives, elastomers, and moulded rubber products.

Our materials are used globally across infrastructure, safety, and recreation projects where long-term performance and durability are critical. Through continual innovation, our material systems are constantly being advanced for a wide variety of uses across diverse industries and applications worldwide.

Rosehill Group operates a fully integrated manufacturing facility in the United Kingdom, with complete control over formulation, production, and quality assurance. This vertical integration allows us to maintain the highest standards of chemical consistency and traceability, ensuring every batch of Rosehill TPV® performs to the same exacting specification, project after project.

Introducing Rosehill TPV®

In the early 2000s, Rosehill identified that traditional EPDM was not fit for purpose due to poor adhesion and limited UV stability, particularly on bright colours. In response, we developed our proprietary Rosehill TPV® — a next-generation cross-linked elastomer system that delivers the durability of traditional rubber with superior UV stability, colour retention, and mechanical strength.

Rosehill TPV® is fully compatible with the same polyurethane binder systems and installation methods used for EPDM, allowing seamless integration into existing surfacing specifications while delivering significantly enhanced long-term performance in all climates.

Why It Matters.

Traditional EPDM granules often begin to degrade, harden, or fade within just a few years of exposure – a process accelerated by high UV levels, temperature fluctuations, and harsh weather conditions. This leads to colour loss, reduced flexibility, and surface breakdown, increasing maintenance requirements and shortening the usable life of the installation.

Rosehill TPV® was specifically developed to overcome these limitations, delivering a surface solution that maintains its colour, elasticity, and structural performance throughout the full design lifespan, even in the most challenging climates.

Material Composition & Manufacturing.

Rosehill TPV® is made from a high-performance polyolefin elastomer, chemically crosslinked to form a fully vulcanised structure.

This delivers the flexibility and resilience of traditional rubber with significantly improved UV stability, colour retention, and mechanical strength — even in the most demanding climates.

Feature	Rosehill TPV®	Typical EPDM
Base Polymer	Polyolefin elastomer – peroxide-cured, fully cross-linked	Ethylene Propylene Diene Monomer (EPDM) with residual unsaturated bonds
Additives	High-performance UV pigments, stabilisers, and adhesion aids	Variable quality – often reduced UV protection
Surface Porosity	Low and consistent – optimised for binder adhesion	Higher porosity; inconsistent bonding
Result	Consistent, durable performance in demanding climates	Gradual surface failure, fading, and hardening

Available Sizes: 1–4 mm standard, 0.5–2 mm optional
Recommended Binder: Moisture-curing polyurethane (PU)

Manufactured in the UK under ISO 9001 quality management systems, every batch of Rosehill TPV® is formulated, cured, and colour-matched on site to guarantee uniform performance across global installations.

Mechanical & Physical Properties.

Property	Requirement / Result	Test Standard
Density	1.55 ± 0.05 g/cm^3	BS ISO 2781
Polymer Content	> 20%	BS EN ISO 3451-1
Hardness	70 ± 5 Shore A	BS ISO 7619-1
Tensile Strength (Granule)	≥ 3.0 MPa	BS ISO 37
Elongation at Break	> 400%	BS ISO 37
Surface Tensile Strength (18% PU)	≥ 0.70 MPa	EN 12230:2003
UV Resistance	≤ Grade 1 colour change (Greyscale 5) after 9600 kJ UVA	EN 14836 / EN 20105-A02
Toy Safety	Pass – Migration of elements	EN 71-3:2019

Rosehill TPV® Colours.

Real-World Performance.

Tensile Strength Comparison (EN 12230, 18% Binder).

Material	Tensile Strength (MPa)
Rosehill TPV®	0.94
Premium EU EPDM	0.583
Asian EPDM	0.456
Asian TPV	0.411
Coated SBR	0.346

Rosehill TPV® outperforms premium European EPDM by > 20% and low-tier EPDM by > 50%, even at reduced binder ratios, delivering both superior strength and binder economy.

NOTE: When assessing rubber surfacing materials, it's vital to review test data that reflects real-world performance, not just isolated material properties. Figures such as tensile strength often relate only to the loose granule, which gives little indication of how the complete system will perform once bound with polyurethane.

At Rosehill, all testing is carried out on granules bound with polyurethane, accurately representing the performance of the installed surface. Independent studies show that Rosehill TPV® delivers over 50% greater strength than coated SBR, and over 20% greater than premium European EPDM, when bound with polyurethane — enabling lower binder use while maintaining and often exceeding the required mechanical performance.

UV Stability.

Independent testing to EN 14836 and EN 20105-A02 confirms that Rosehill TPV® achieves Greyscale 5 after 9600 kJ UVA exposure, showing no visible colour change and retained mechanical performance. This UVA dose equates to approximately 1 to 2.5 years of natural sunlight exposure, depending on regional UV intensity – from around 1 year in the Middle East to more than 2 years in Northern Europe – well beyond the point at which EPDM typically begins to fade.

Sample	Greyscale Result	Observed Effect
Rosehill TPV®	5	No visible degradation
Premium EU EPDM	3–4	Noticeable fading
Low-Grade EU EPDM	2–3	Pronounced discolouration
Asian EPDM	2	Severe fading and surface breakdown

Rosehill TPV® retains colour and elasticity long after EPDM begins to chalk, fade, and harden, maintaining safe, vibrant, and compliant surfaces throughout its lifecycle.

Regional UV Exposure Equivalence

Region	Days to 9600 kJ UVA	Approx. Years Exposure
Australia	380 days	1 yr
Asia	467 days	1.3 yrs
Middle East	350 days	1 yr
Southern Europe	539 days	1.5 yrs
Northern Europe	876 days	2.4 yrs

Independent accelerated weathering tests confirm that Rosehill TPV® shows no visible colour change or degradation after 9600 kJ UVA exposure — equivalent to approximately 2.4 years of natural sunlight in Northern Europe, or 1 year in the Middle East. This significantly exceeds the point at which conventional EPDM typically begins to fade and harden.

Whole-Life Performance & Cost Efficiency.

Traditional EPDM and coated SBR surfaces often deteriorate within 3–5 years, leading to frequent repairs and premature resurfacing.
In contrast, Rosehill TPV® is engineered to maintain structural and visual integrity throughout the design lifespan of the installation, with minimal maintenance – reducing whole-life costs by up to 20%.

Typical 10-Year Lifecycle 100 m² Bright Colours:

Cost Factor	EPDM	Rosehill TPV®
Initial Material Cost	£2,205	£2,007
Maintenance (10 yrs)	£600	£200
Total 10-Year Cost	**£3,100**	**£2,430**

The savings represent more than a financial benefit – they enable local authorities to reinvest in new play spaces, accessibility improvements, and safer public environments.

Material Safety & Environmental Profile:

- **No VOCs or Leachates:** Free from plasticisers, heavy metals, and phthalates.
- **Recyclable:** Production offcuts can be reclaimed and reground for reuse in new products.
- **Non-Toxic:** Free from harmful elements per toy safety migration testing.
- **No Microplastic Risk:** Solid cross-linked granules stable in bonded systems.
- **Long Service Life:** Extended replacement cycles reduce resource use and carbon footprint.
- **Standards Compliance:**
  - EN 1177 – Impact Attenuation of Playground Surfacing
  - EN 12230 – Tensile Properties of Synthetic Sports Surfaces
  - EN 71-3 – Migration of Elements (Safety of Toys)
  - REACH – Chemical Safety Compliance
  - EN 14836 / EN 20105-A02 – Accelerated Weathering & Colour Fastness

Specification Clause.

Manufacturer:
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Product Reference: Rosehill TPV® Coloured Rubber Granules

Type: Rosehill TPV® is a proprietary formula consisting of fully cross-linked (vulcanised) premium coloured rubber granules for use with polyurethane moisture-curing binders in wet-pour surfacing systems.

Note: *Rosehill TPV® is a product designation and does not indicate a conventional TPE-V thermoplastic vulcanisate.*

Standards: BS EN 1177, EN 14836, EN 12230, EN 71-3.

Substitutions: None permitted unless full independent evidence confirms equivalence.

Performance Requirements:
- UV Stability ≥ Greyscale 5 after 9600 kJ UVA (340 nm)
- Composite Tensile Strength ≥ 0.70 MPa (at 18% binder)
- Elongation > 400%
- Fully compliant with EN 71-3 (Toy Safety)
- Non-porous, non-spherical granules for binder efficiency
- Retains flexibility – no embrittlement under UV or temperature cycling, and no pigment leaching

Installation:
To be installed by an approved Rosehill Sports & Play contractor using standard wet-pour methods in accordance with the manufacturer's data sheets and EN 1177 requirements.

Maintenance:
Inspect regularly; clean, repair, and resurface only using original Rosehill TPV® materials.

Specifier Note:
When specifying surfacing material, it is critical to reference Rosehill TPV® by name to ensure the correct product is supplied. While other manufacturers market products using the name "TPV", these differ significantly in formulation, performance, and durability.

Rosehill TPV® is a proprietary formulation, engineered and tested to deliver proven UV stability, colour consistency, and long-term mechanical performance unmatched by generic alternatives. Incorrect substitution can lead to premature fading, surface degradation, and reduced lifespan, compromising both visual quality and safety performance.

To maintain compliance with performance requirements and ensure the intended quality of the installation, specifications should clearly state:

"Surface layer to be constructed using Rosehill TPV® rubber granules, manufactured by Rosehill Group, UK. No alternatives or substitutions accepted."

A Clear Difference in Long-Term Performance: Tsuen Wan Plaza, Hong Kong

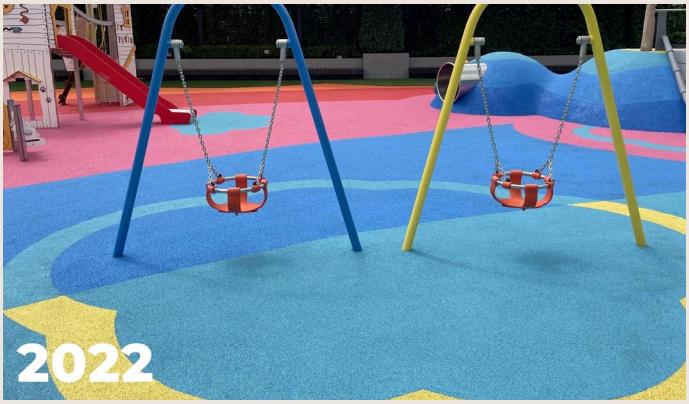
When Tsuen Wan Plaza first installed an EPDM rubber surface in 2021, the result appeared bright and vibrant — ideal for a busy family shopping destination. However, within just a few months, the material showed severe fading, patching, and surface hardening across large areas.

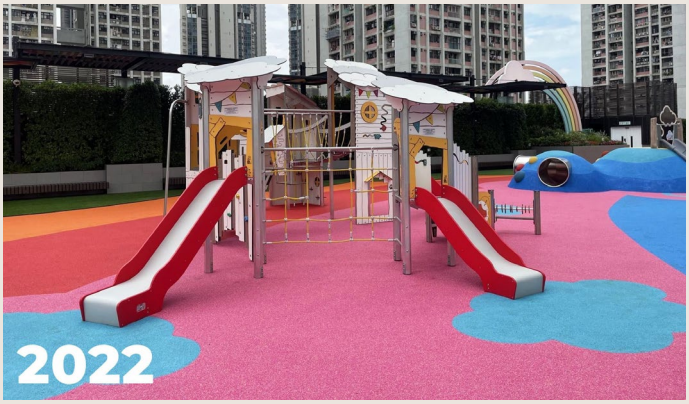
The deterioration was caused by Hong Kong's extreme UV exposure, high humidity, and heavy use — a combination that quickly breaks down conventional EPDM granules.

In 2022, the surface was fully replaced with Rosehill TPV®, offering superior UV stability, durability, and long-lasting elasticity. Since installation in 2022, the Rosehill TPV® surface remains almost identical to the day it was installed — with no noticeable fading, cracking, or hardening despite constant exposure to sun, sea air, and foot traffic.

EPDM

Rosehill TPV®





Specifying Rosehill TPV® ensures surfaces that remain safe, vibrant, and durable for years longer than EPDM alternatives. Tested to the highest international standards, manufactured under strict UK quality control, and proven in climates worldwide, Rosehill TPV® delivers the perfect balance of aesthetics, performance, and sustainability.

Global Performance.

Proven across thousands of installations worldwide — from arid deserts to Scandinavian winters — Rosehill TPV® delivers consistent resilience in every climate.

CHILE

UNITED KINGDOM

AUSTRALIA

HONG KONG

UNITED ARAB EMIRATES

DISNEYLAND, USA

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