

Flexstone[®] Eco-Material

Wallcovering Substrate Solutions



Flexstone[®] A Green Alternative for Wallcovering Substrates

The wallcovering industry is undergoing significant transformation. With over 90 countries having implemented or advancing plastic ban legislation, combined with rising consumer demand for green building materials and increasingly stringent supply chain carbon footprint scrutiny from brand owners, traditional wallcovering substrates — whether petroleum-based PVC, or wood- and water-intensive non-woven and pure paper — are facing mounting pressure from both regulatory and market fronts.

Stone paper has emerged as a next-generation material in this evolving landscape. By replacing wood pulp with calcium carbonate mineral powder, it achieves zero tree consumption and zero process water usage, substantially reducing environmental impact from the very start of production. Compared to wood pulp paper, stone paper production reduces CO₂ emissions by approximately 67%, cuts water consumption by about 97%, and consumes only about 15% of the energy required for conventional paper manufacturing. It combines the printability of paper with the physical durability of film, making it an ideal substrate for sustainable wallcovering solutions.

Flexstone's objective is to provide wallcovering manufacturers with a green material alternative to PVC wallcoverings. It should be noted that Flexstone currently cannot fully replace PVC wallcoverings in applications with stringent fire safety requirements — halogen-free and eco-friendly fire-retardant formulations are still under development. However, for the wallcovering applications without special fire-rating requirements, Flexstone already offers a mature, high-performance, and environmentally responsible alternative.

Flexstone® VS Conventional Wallcovering Substrates Performance Comparison

Comparison	Flexstone® Eco-Material VS	PVC Wallcovering VS	Non-Woven Wallcovering VS	Pure Paper Wallcovering
Raw Material	Calcium carbonate + resin	PVC + plasticizers	PVC + Plasticizers	Wood Pulp
Trees Used	0 trees	0 trees (petroleum-based)	0 trees (Petroleum-Based)	Trees Required
Water Usage	Near Zero	Moderate	Moderate	High (~35,000 L/ton)
CO ₂ Emissions	~67% lower than wood pulp paper	Higher	Higher	Baseline (1,431 Kg CO ₂ /ton)
Waterproof	Fully Waterproof	Fully Waterproof	Fully Waterproof	Poor (Disintegrates when wet)
Dimensional Stability	Excellent (no shrink/swell with humidity)	Excellent	Excellent	Poor
Tear Resistance	High	High (higher with fabric backing)	High (higher with fabric backing)	Low
Convertibility	Suitable for embossing, graining, gravure & digital printing	Suitable (mature process)	Suitable (mature process)	Suitable
Eco Credentials	Tree-free, water-free, no bleach, recyclable	Contains chlorine, plasticizer concerns	Contains chlorine, plasticizer concerns	FSC (Limited)
Incineration	No toxic gases, no black smoke	May release HCl and other toxic gases	May release HCl and other toxic gases	May release dioxins

Flexstone® Product Formats

Flexstone Eco-Material is supplied in roll form. Wallcovering manufacturers can choose from the following three formats based on their production process requirements

➤ Unbacked Wallcovering Substrate (No Backing)

Flexstone Eco-Material rolls serve as a direct face substrate for wallcovering production. Manufacturers can apply their own backing materials (non-woven, fabric, etc.) and perform downstream converting operations such as embossing, graining, and printing. The material offers excellent flatness and printability, providing flexibility for manufacturers to follow their proprietary production routes.

➤➤ Key Advantages

- Superior flatness ensures stable web feeding at high speeds — no curling or warping
- Good heat resistance, compatible with gravure and digital printing, ensures dimensional stability during high-temperature processes
- Optimized surface coating delivers strong ink adhesion and precise color reproduction
- Warm white tone with outstanding opacity — ideal for light-colored and vibrant pattern printing
- Suitable for post-printing embossing and graining — enabling rich surface textures

Recommended Weight: 150–360 g/m²

Recommended Thickness: 150–300 µm

Recommended Printing: Gravure (industry standard), Digital

➤ Pre-Laminated Wallcovering (with Non-Woven / Fabric Backing)

Flexstone Eco-Material is pre-laminated with non-woven or fabric backing at the factory. Manufacturers can proceed directly to surface printing, embossing, and other finishing processes — eliminating the need for in-house backing lamination and significantly streamlining production.

➤➤ Key Advantages

- Eliminates the backing lamination step — reducing production cost and process complexity
- Enhanced overall strength post-lamination — easier handling during installation
- Backing material customizable (non-woven / fabric / others) to meet specific requirements
- Retains all printing and converting advantages of the Flexstone face layer

Recommended Weight (total after lamination): 250–460 g/m²
Recommended Thickness (total after lamination): 300–600 μm

➤ Self-Adhesive Wallcovering (with Permanent Adhesive)

Flexstone Eco-Material is pre-coated on the reverse side with a permanent acrylic adhesive and protected by a release liner. Manufacturers can directly slit, package, and distribute as self-adhesive wallcovering products — end users simply peel and apply, with no on-site adhesive preparation required.

➤➤ Key Advantages

- Eliminates on-site adhesive application — clean, convenient, and time-saving
- High initial tack — secure adhesion once applied
- Fully waterproof and tear-resistant — suitable for humid environments such as kitchens and bathrooms
- Ideal for DIY market and rapid renovation projects

Recommended Weight (face material): 150–250 g/m²;
Total weight with release liner depends on adhesive coat weight.

Flexstone® Wallcovering Converting Compatibility

Flexstone Eco-Material is optimized for the mainstream converting processes used in wallcovering manufacturing:

Process	Compatibility	Notes
Gravure Printing	Excellent	Industry-standard process for wallcoverings; strong ink adhesion, fine pattern detail
Digital Printing	Excellent	Suitable for short-run and customized wallcovering production
Embossing / Graining	Suitable	Material flexibility enables rich surface texture creation
Backing Lamination	Suitable	Compatible with non-woven, fabric, and other backing materials
Coating	Suitable	Enables additional functional coatings as required

Specifications

Parameter	Specification
Width	1.52 m / 60 inches (standard wide-web format)
Length	Customizable — jumbo rolls up to 1,000+ meters
Weight Range	120–350 g/m ² (customizable upon request)
Thickness Range	120–350 µm (customizable upon request)
Surface Finish	Warm white matte, printable and embossable
Backing Options	Unbacked / Non-woven backing / Fabric backing / Self-adhesive (permanent)
Eco Certifications	Compliant with ROHS, REACH and other international standards

Why Choose Flexstone®?



Clear Eco-Credentials Zero trees, zero process water, no bleaching — providing wallcovering brands with a quantifiable sustainability story that meets growing market demand for green building materials. One ton of stone paper replacing wood pulp paper saves approximately 18 trees, 35,000 liters of water, and reduces CO₂ emissions by 67%.



Reliable Physical Performance Fully waterproof, dimensionally stable, and tear-resistant — no expansion or contraction with humidity changes — suitable for kitchens, bathrooms, and other humid environments.



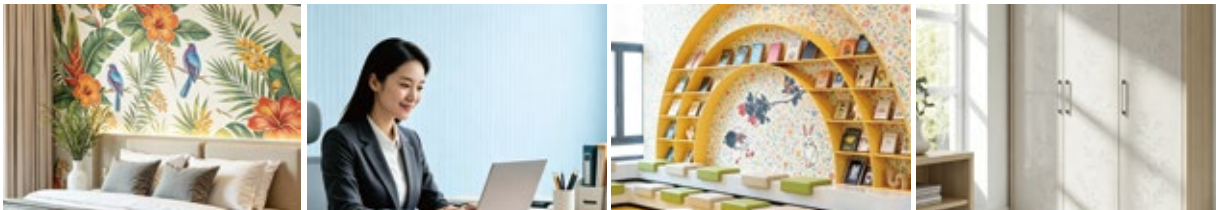
Superior Convertibility The warm white tone delivers precise color reproduction with excellent opacity, making it ideal for high-definition patterns and fine detail printing. Its outstanding heat resistance ensures dimensional stability and prevents shrinkage during high-temperature converting processes — including gravure and digital printing, the mainstream techniques in wallcovering manufacturing.



Stable Roll Quality Wide-web format at 1.52m with excellent flatness — stable feeding at high speeds with no curling or warping — reducing downtime and improving production efficiency.



Broad Application Scope Suitable not only for residential wallcoverings but also for hotel guest rooms, office spaces, commercial displays, furniture surfacing, and other diverse interior applications.



GUANGZHOU NEWLIFE NEW MATERIAL CO., LTD

Add.: No.4, 4th Canghai Road, Yonghe, Guangzhou Development Zone, Guangzhou, China, 511356

Tel: 86-20-62283180 Email: newlife@newlife.cn Website: www.newlife.cn