

ENHANCED SAFETY WITH MESH BACK TECHNOLOGY FOR CERAMIC TILES

In façade applications and other high-performance tile systems, safety is a top priority. That is why mesh back technology is increasingly being applied to the back of ceramic tiles. This reinforcing layer helps prevent broken tile fragments from falling in the event of tile failure, providing additional safety and peace of mind for architects, contractors, façade engineers, and building owners.

The Influence of Mesh Back on Adhesion

While mesh back technology offers clear safety advantages, it also requires special attention regarding adhesive performance. The resin composition used to apply the mesh backing can affect the bond between the adhesive and the tile.

In some cases, the resin may reduce the surface tension of the tile backside. This can lead to insufficient wetting, meaning the adhesive does not spread properly across the surface, potentially compromising bond strength and long-term system performance.

The Solution: Optimized Surface Activation

To achieve reliable and durable adhesion, the surface can be treated with a high-performance surface activator such as **TWEHA® Prefix X-TRA**. This treatment improves surface tension and promotes better adhesive wetting, resulting in stronger and more durable bonding performance.

With the correct surface preparation, the system benefits from:

- enhanced safety,
- improved adhesion,
- and increased long-term durability.

Tested Under Extreme Real-World Conditions

Because façade systems are continuously exposed to severe environmental conditions, we test the bonding performance of our adhesive systems under extreme circumstances, including:

- prolonged moisture exposure,
- significant temperature fluctuations,
- freeze-thaw cycles,
- and changing climate conditions.

These tests provide a realistic understanding of how the complete bonding system performs in practice. This is especially important for tiles with mesh back systems, where moisture and temperature variations can influence the interaction between the tile, resin layer, and adhesive.

By thoroughly testing our systems under these demanding conditions, we can better guarantee the durability, safety, and reliability of the complete installation system.

Special Attention for Water-Based Resin Systems

With mesh backs based on waterborne resin systems, an additional point of attention exists. Under extreme moisture exposure, so-called **adhesive failure** may occur, where the bond between the resin layer and substrate weakens or detaches.

This is why proper system design and material compatibility are essential. By combining high-quality surface treatment with a carefully selected adhesive system, these risks can be significantly reduced.

Safety and Performance Combined

Mesh back technology provides important safety benefits, but it also requires a well-engineered technical approach. With the right expertise, surface preparation, and adhesive technology, safe and durable bonding performance can be achieved.

TWEHA® Prefix X-TRA supports this process as a reliable solution for optimizing adhesion and ensuring long-term performance — even under the most demanding conditions.

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