FRONT®

Frequently Asked Questions

Mimmik Tile

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1. Introduction

Mimmik Tile is the first-ever tile that grows with the help of bacteria, now produced on an industrial scale. It's the solution to drastically reduce your carbon footprint.

Please refer to this document for the most frequently asked questions.

Can't find an answer? Please get in touch with FRONT.

2. Material & Technology

What is Mimmik Tile?

Mimmik Tile is a next-generation mineral tile grown through a bacteria-driven mineralization process inspired by natural mineral growth. The process forms a durable mineral structure without relying on energy-intensive firing or conventional Portland cement chemistry.

What type of material is Mimmik Tile?

Mimmik Tile is best described as a mineral tile. It shares some characteristics with cement-based materials but is produced through a biomineralization process rather than traditional cement hydration or ceramic firing.

Why is Mimmik Tile different?

Instead of relying on high-temperature kilns or conventional Portland cement chemistry, Mimmik tiles form through biomineralization.

What does biomineralization mean?

Biomineralization refers to the process where biological organisms trigger the formation of minerals. Similar processes occur in nature when corals, shells and limestone structures grow.

How exactly do bacteria create a tile?

During production, bacteria initiate the formation of calcium-based minerals that gradually bind the material into a solid mineral matrix. Once this process is complete, the result is a stable inorganic mineral material.

Are the bacteria still alive in the Mimmik Tile?

No. The bacteria are only active during the production process and are not active in the final product.

Is the final product organic or inorganic?

The final product is an inorganic mineral material, comparable to other mineral construction materials.

Is Mimmik Tile similar to concrete?

It shares mineral durability characteristics with concrete, but the binding mechanism is fundamentally different. Traditional concrete relies on Portland cement hydration, while Mimmik relies on mineral formation triggered through biomineralization.

Is the Mimmik Tile material new?

The application in architectural tiles is new, but the underlying biomineralization processes have been studied extensively in materials science and biotechnology.

Why the name Mimmik Tile?

The name refers to mimicking natural mineral growth processes.

Is the technology Zymecrete™ scalable?

Yes. The manufacturing process is designed for architectural production scale.

If Mimmik Tile uses bacteria, how can it be stable over time?

The bacteria only play a role during the mineral formation stage. They are not active in the final material. The microorganisms initiate the mineralization process during production. Once the mineral matrix is formed, the biological activity stops and the result is a stable inorganic mineral structure comparable to other mineral-based building materials.

Is Zymecrete™ experimental technology?

The underlying biomineralization process is well studied and increasingly applied in materials science. Microbial-induced mineralization has been studied extensively for applications such as soil stabilization, self-healing concrete and mineral material formation. Mimmik Tile applies these principles in a controlled manufacturing environment to produce architectural tiles.

How reliable are the carbon numbers on Mimmik Tile?

The current figures are based on Life Cycle Assessment modelling and are being validated through an independent LCA. The preliminary result of < 5.5 kg CO_2e per m^2 (A1–A3) is based on internal modelling following LCA methodology. An independent Life Cycle Assessment is currently being finalized, which will form the basis for a verified EPD.

Why are you comparing Mimmik Tile to Portland cement tiles?

Because Portland cement is typically the largest carbon contributor in conventional concrete-based tiles. The calcination of limestone during cement production releases large amounts of CO_2. By forming mineral structures through biomineralization instead of cement hydration, Mimmik can significantly reduce the embodied carbon associated with the binder phase.

If Mimmik Tile still contains cement, how can the carbon be lower?

The process significantly reduces reliance on conventional Portland cement chemistry. The binding mechanism is based on mineral formation rather than solely on cement hydration. This allows the material to achieve structural integrity with a lower carbon intensity than conventional cement-based tiles.

How long has Zymecrete™ technology existed?

Biomineralization processes are widely studied in materials science and biotechnology. Research into microbial-induced mineralization dates back decades and has been explored in fields such as geotechnical engineering, carbon sequestration and construction materials. Biomason® started it's journey in 2012. Today Mimmik Tiles are made with 3rd generation Zymecrete™ technology by Biomason®.

3. Sustainability & Carbon

What is the carbon footprint of the Mimmik Tile?

Preliminary modelling indicates less than 5.5 kg CO_2e per m^2 (A1–A3).

How does that compare to conventional tiles?

This represents approximately 60% lower embodied carbon compared to a comparable Portland cement-based concrete tile.

Why is the carbon footprint lower?

The production process avoids the most carbon-intensive step in conventional cement products: the calcination of limestone and high-temperature kiln processes.

What part of the lifecycle is measured?

The current estimate covers **A1–A3**, which includes:

- raw materials
- transport
- manufacturing

Is the LCA verified?

An independent Life Cycle Assessment is currently being finalized and will form the basis for a verified Environmental Product Declaration.

Will there be an EPD?

Yes. A third-party verified Environmental Product Declaration is part of the roadmap.

Does the Mimmik Tile store carbon?

The main sustainability benefit comes from avoiding high-carbon production processes, rather than relying on carbon storage.

Are there other environmental benefits of Mimmik Tile?

The process can potentially reduce:

- energy consumption
- high-temperature processing
- carbon emissions associated with cement production

In which databases is Mimmik Tile listed?

Mimmik Tiles (under the previous name BioBasedTiles) have been added to the SundaHus Material Data system with an A-rating. SundaHus Material Data is the market leader for environmentally conscious material choices in the construction and property markets in Sweden.

Mimmik Tiles are also listed in the Nordic Swan Ecolabel's Building Materials Database. The Building Materials Database, shared with all Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), is used by building producers to find products that are accepted by Nordic Ecolabelling.

4. Performance & Durability

Is the material durable enough for architecture?

Yes. The tile forms a dense mineral matrix designed for architectural applications.

Is Mimmik Tile suitable for high-traffic areas?

The material is designed for architectural surfaces including commercial environments, depending on installation and project conditions.

What about abrasion resistance?

Testing and development continue to evaluate performance characteristics such as wear resistance and long-term durability.

What happens if Mimmik Tile breaks?

It behaves similarly to other mineral tile materials. The material forms a dense mineral matrix comparable to cementitious products. Mechanical behaviour such as fracture patterns is consistent with other mineral-based architectural materials.

Is Mimmik Tile water resistant?

Like many mineral tile materials, performance depends on proper installation and sealing.

Can Mimmik Tile be used in bathrooms?

Yes, when installed according to the recommended installation system and sealing guidelines.

Can Mimmik Tile be used outdoors?

At the current stage, the tiles are primarily developed for interior applications until further testing is completed.

Is the material of Mimmik Tile fire resistant?

As an inorganic mineral material, it is inherently non-combustible.

What is the VOC class for Mimmik Tile?

Mimmik Tile is listed as ILFI™ Declare Red List Free and has a Health Product Declaration (HPD).

What is the anti-slip rating of Mimmik Tile?

Mimmik Tile has an R12 rating with a Pendulum Test Value and Slip Resistance Value rating beyond 50.

How is the fire resistance of Mimmik Tile?

The product has an organic content of less than 1% and is therefore classified as class A1 in accordance with EN 13501-1 and Delegated Regulation 2016/364.

Mimmik Tile falls under Fire Class A1 in accordance with EN 13501-1, the highest classification for fire performance in construction materials. This means the tiles are non-combustible and do not contribute to fire at any stage.

Is Mimmik Tile durable?

Yes. The material forms a dense mineral structure designed for architectural surface applications.

Is Mimmik Tile recyclable?

Like many mineral building materials, the tiles can be crushed and reused as mineral aggregate.

At end-of-life, mineral tiles can be processed in similar ways to other mineral construction materials. Further circularity pathways are being explored as part of the material development roadmap.

Is Mimmik Tile sensitive to moisture?

No more than other mineral tiles when installed correctly. Proper installation, sealing and substrate preparation ensure performance comparable to other mineral tile systems.

What about freeze–thaw durability on Mimmik Tile?

Testing and application scope are currently focused on interior applications. Until further testing and certification are completed, Mimmik tiles are specified primarily for interior architectural applications.

How does Mimmik Tile perform compared to ceramic tiles?

Ceramic tiles rely on extremely energy-intensive firing processes, while Mimmik tiles form through mineral growth processes. Ceramic production typically involves kiln temperatures above 1000°C. Mimmik tiles form through biomineralization, which avoids this step and significantly reduces embodied carbon.

Is Mimmik Tile safe and inert?

Yes. The final product is an inorganic mineral material. Once mineralization is complete, the resulting structure is stable and comparable to other mineral-based building materials used in construction.

What is the biggest uncertainty about the material of Mimmik Tile?

As with any emerging material, ongoing testing, scaling and certification processes continue to expand the performance data available for specification.

Can Mimmik Tile scale to large projects?

Yes. The production process is designed with scalability in mind. The manufacturing process can be scaled through controlled growth environments and modular production systems.

Why should architects trust a new material like Mimmik Tile?

Because the material combines a fundamentally different production process with familiar mineral performance characteristics.

5. Installation

How are Mimmik Tiles installed?

They are installed using conventional tile installation systems with thinset mortar and grout.

Is installation different from ceramic tiles?

The process is largely similar, though installers should follow the dedicated installation guidelines.

Do Mimmik Tile require sealing?

Yes. A penetrating sealer is recommended.

Why seal before grouting?

A pre-grout seal helps prevent grout haze and protects the tile surface during installation.

Can normal grout be used?

Yes, provided it is compatible with the installation system.

Are special adhesives required?

Standard thinset mortars that comply with tile installation standards can be used.

Where can Mimmik Tile be used?

Mimmik tiles are developed for interior architectural applications including floors and walls.

How is Mimmik Tile installed?

Using conventional tile installation systems with thinset mortar and grout. Download the current version of the installation manual online.

Does Mimmik Tile require sealing?

Yes. A penetrating sealer is recommended to protect the surface and support long-term performance.

6. Design & Aesthetics

Is every Mimmik Tile identical?

Subtle natural variations can occur, similar to other mineral materials. Slight variations in texture and tone can contribute to a natural appearance.

What sizes of Mimmik Tile are available?

Mimmik tiles are currently available in 400 x 200 mm with a thickness of 19 mm, designed for interior surface applications.

Can custom colours / sizes be made?

At the moment we don't offer custom options. Future expansion of the collection will be announced on our website and via our newsletter.

Does the tile age or develop patina?

Like many mineral materials, the surface may develop subtle character over time depending on use and maintenance.

7. Practical Project Questions

What is the lead time?

For small projects (< 500 m²) the lead time is 8 weeks from a signed quotation. Larger projects (> 500 m²) might need additional production time. Please inquire about specific lead times for your larger project.

Is Mimmik Tile available for large projects?

Yes. Production is designed to scale for architectural projects.

Are samples available?

Yes, sample sets are available for evaluation.

Why should architects consider specifying this material?

Because it combines architectural durability with a fundamentally different and significantly lower-carbon production process.

8. Contact Information

Can’t find the answer to your question?

Please contact FRONT Materials here.