BioBasedTiles (Biolith)

Product Datasheet

FRONT®
Formerly StoneCycling

Biolith™ Tile Product Data

Solving Cement

THE PROBLEM - CO_2 EMISSIONS Ordinary Portland cement (OPC) accounts for 8% of all global carbon dioxide emissions. As demand for cement and concrete continues to grow, it is more imperative than ever to invest in technology that eliminates construction's climate impact. OPC requires combustion of fuels to heat limestone to 1450 °C to produce clinker, which is then ground down to make cement for concrete. The calcination process requires an enormous amount of energy and releases CO_2 as a byproduct. Biomason makes cement in a fundamentally different way.

WHY BIOMASON IS DIFFERENT The core technologies of Biomason revolve around the creation of biologically generated calcium carbonate to produce Biocement™ products, replacing OPC and working to reduce environmental impacts from the construction industry. Harnessing the power of biology, enzymatic processes from microorganisms grow durable cements. The bacteria in our Biocement material are activated and then precipitate carbon and calcium to produce a biologically forged calcium carbonate, $CaCO_3$ — the same material as coral skeletons, seashells, and limestone. Biomason Biocement technology uses calcium and carbon as a building blocks without the need for kilns used to burn limestone.

BIOMASON BIOCEMENT TECHNOLOGY Biomason Biocement uses carbon and calcium as a building blocks, without the need for kilns used to burn limestone. Biocement forms through multiple patented, biological processes. Biomason® Biolith™ tiles do have cradle-to-gate carbon emissions, largely associated with raw material supply chains. However, Biomason is building pathways to producing carbon neutral construction materials as we continue to drive down production impacts and transitioning to carbon negative systems as Biomason works with emerging low-carbon supply chains.

Product Description

BASIC USE Biomason Biolith tile is appropriate for interior use in commercial, institutional, and residential building projects. Biolith tile is used in vertical facing assemblies and installed on a support wall with adhesive or mechanical systems, or adhered onto a fixed substrate in horizontal conditions.

COMPOSITION AND MATERIAL Biolith tile is manufactured from locally-sourced aggregate and biologically generated calcium carbonate to make Biocement products, resulting in modular units with one or more finished faces. They are formed by vibratory compaction in a semi-dry mix and cured in ambient temperatures, reaching full strength in a few days.

SIZES Biolith tile is available in standard sizes, as outlined in Table 1

Table 1: Standard Sizes, Denmark Factory

Product Code	Length	Width	Depth
BL-4004-	400 mm	40 mm	19 mm
BL-4020-	400 mm	200 mm	19 mm

TOLERANCES Biolith tile does not shrink during curing. Units are measured according to EN 14716-16.

LIMITATIONS Biolith tile is intended for above grade applications. Manufactured masonry units, regardless of composition, are inherently absorptive and are not intended for below-grade applications.

COLORS The calcareous component of Biomason® Biocement™ products is translucent white in color, which reveals the color of the underlying base aggregate. Variations to aggregate color and tone are achieved using inert pigments. Standard colors are outlined in Table 2.

Table 2: Standard Colors, Denmark Factory

Color Code	Description
-PEP-	Aggregate - Pepper
-GING-	Aggregate - Ginger

Biolith tile is inspected for color consistency. Slight variations between batches may occur, and it is recommended that the installer mix units from different skids during installation. Custom colors, variations, insets, and decorative effects are

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available on a minimum order basis. Please contact hello@biomason.com for details.

Technical Data

PERFORMANCE STANDARDS Biolith™ tile meets and exceeds the physical properties for common standards (EN and ASTM). Full testing data available upon request.

Table 3: Product Specification

Parameter	Test Standard	Value
Configuration	EN 14617-16	in Table 1
Compressive Strength	Internal Method[1]	25 MPa
Flexural Strength	EN 14617-2	>3.0 MPa
Tensile Bond Strength	EN 12004-2	>1.0 MPa
Density	EN 14617-1	>1800 kg/m^3
Water Absorption	EN 14617-1	<10%
Resistance to Mechanical Wear	DIN 51130	R12
Reaction to Fire	EN 13501-1	Class A1[2]

[1] Closely follows the EN 772-1 standard
[2] The product has an organic content of less than 1% and therefore classified as class A1 in accordance with EN 13501-1 and Delegated regulation 2016/364.

ENVIRONMENTAL IMPACT Biomason® Biocement™ products are formed in ambient temperatures and without the use of fossil fuels. Biolith tiles are composed of~ 90% aggregate (locally-sourced based on manufacturing facility location) and 10% biologically generated calcium carbonate by mass. Calcium carbonate in Biocement products contains 44% sequestered carbon dioxide (CO_2) by mass obtained from industrial sources.

CERTIFICATION

- ILFI™ Declare Red List Free
- Health Product Declaration
- SundaHus Material Data
- Approved Nordic Swan Ecolabelled buildings
- Mindful Materials Database

Installation

DELIVERY Biolith tile is shipped to the specified delivery location on standard shipping pallets with a per-pallet weight of less than 1000 kg (2205 lbs).

STORAGE Place a moisture barrier between the ground and pallet to prevent exposure to moisture. Keep tiles at least 3 inches (7.62 cm) above grade for the duration of storage.

WORKABILITY Biolith tile may be cut using a standard wet saw with a diamond abrasive blade. An angle grinder fitted with an appropriate cutting blade and a dry saw fitting with appropriate cutting blade and vacuum may also be used.

INSTALLATION Install Biolith tile in accordance with all applicable codes, standards, and any local requirements, as well as our installation guide. A solid support system must be provided. Suitable options include wood stud, steel stud, poured concrete, unit masonry (CMU or brick) in vertical assemblies. Reinforced concrete slab is required for horizontal assemblies. Installation on other substrates may be possible. Adhesive attachment methods must be tested and approved for a minimum shear strength of 345 kPa (50 psi) in accordance with EN 1052-3, Clause 5.3.13 or ASTM C482.

Horizontal applications require compliance with applicable codes regarding coefficient of friction.

Biomason Biocement products are formed with a calcareous material similar in composition to limestone. Metal components in contact with Biolith tile should be non-corrosive to prevent discoloration. Non-magnetic austenitic types 302 and 304 stainless steel may be used without protection according to acceptable industry methods.

Refer to Biomason's Installation & Care Guide for additional information regarding installation, care, and maintenance.

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Availability and Cost

AVAILABILITY Delivery times for orders will vary based on the size and complexity of the order. Contact **hello@biomason.com** for further details.

COST Quoted on a per-project basis.

Warranty

For warranty conditions, see the Biomason® Biolith™ Tile. Limited Warranty documents.

Maintenance

Clean Biolith tile in accordance with the cleaning guidelines in the installation guide. Never use acid-based cleaners such as vinegar, citrus-based products, or muriatic acid on Biolith tile.

Always pre-test cleaning agents and methods on the job-site mock-up or an inconspicuous area of the wall. The consultant and/or owner should approve the test area prior to the start of full-scale cleaning operations.

For questions regarding whether a certain cleaner or cleaning tool is safe, please contact Biomason prior to use at **hello@biomason.com** or call us at **1-80-BIOMASON** to speak with a Biomason specialist. Additional maintenance considerations can be found in the Biomason Installation and Care Guide.

Support

For further questions and custom inquiries, contact **hello@biomason.com**.