

trip

The natural company

TECHNICAL DATA SHEET

WALL AND FLOOR COVERING IN NATURAL STONE

"BLACK LAVA" Stone

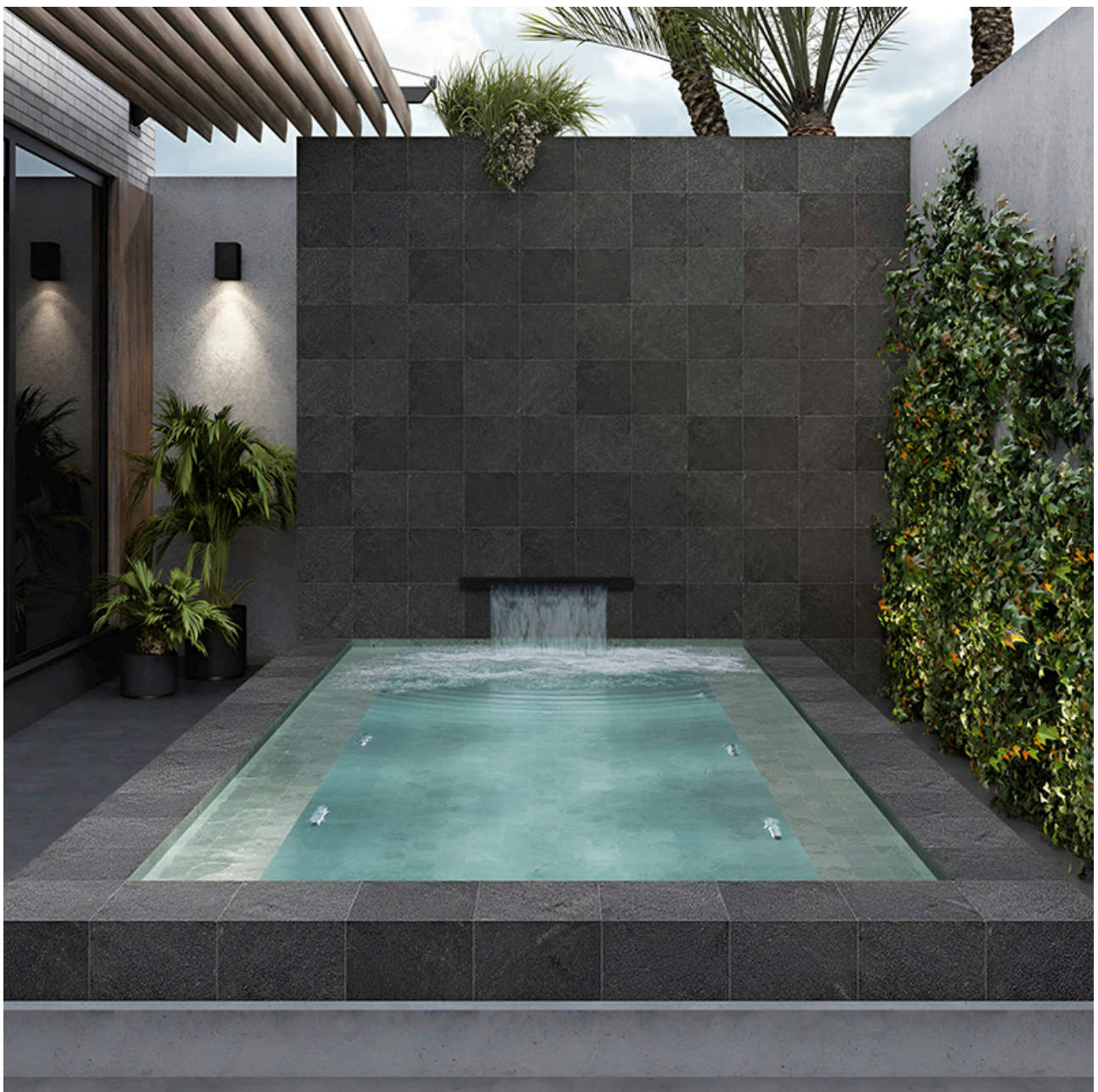


BLACK LAVA stone is a volcanic rock of eruptive origin resulting from the flow of magma from ancient extinct volcanoes millions of years ago. It is when in contact with water or air that lava solidifies, more or less slowly, forming different types of lava stones. Technically, according to rock classification criteria, it is an igneous rock that is petrographically defined as an andesitic-basaltic rock.

It is a raw stone that contains many minerals and offers a varied aesthetic appearance, a result of its formation process that left various aesthetic marks reflected on its surface, once cut into tiles.

As a natural stone, BLACK LAVA is durable and attractively beautiful. The stone is not only beautiful but also beneficial. Properly treated, it can be used to line a pool, and one of the advantages of this great natural stone is its ability to retain and distribute heat; that is, it can absorb heat during the day so that at night the water inside the pool remains warm because this stone, when the outside temperature is cold, releases the heat it has absorbed.

It is suitable for many different uses, not only for pools or floors but also for walls in houses or public spaces.



GENERAL

Provenance		Indonesia			
Colour		Matte black, ranging from ash grey to various shades of anthracite or lead.			
Type of material		Andesitic-basaltic volcanic rock.			
Appearance and finish		Strongly de-toned pieces, coarse surface with possible slight sawing marks and high presence of micro hollows, like those of a cavernous spongy fabric, coming from the air and gas bubbles that appeared during its formation. Highly non-slip			
Dimensions	Length	10 cm	20 cm	20 cm	30 cm
	Width	10 cm	10 cm	20 cm	30 cm
	Thickness	1 cm	1 cm	1 cm	1 cm
Dimensional tolerances	Length	+/- 1,0 mm			
	Width	+/- 1,0 mm			
	Thickness	+/- 1,5 mm			
Packaging	Pieces per box	100	50	50	11
	M ² per box	1 m ²			
	Boxes per pallet	60			48
	M ² per pallet	60 m ²			48 m ²
Weights	Per box / m ²	20,50 kg			
	Per Pallet	1.245 kg			1.000 kg
Reaction to fire (UNE-EN ISO 13501-1-2019)		A1			
Water absorption (UNE-EN ISO 10545-3-2018)		22,5 %			
Mineralogical composition	Plagioclase	40-50 %			
	Pyroxenes	25-40 %			
	Olivine	10-20 %			
	Magnetite	2-3 %			
Chemical composition	Silicon dioxide (SiO ₂)	94,15 %			
	Iron trioxide (Fe ₂ O ₃)	1,64 %			
	Magnesium oxide (MgO)	0,28 %			
	Manganese oxide (MnO ₂)	0,05 %			
	Aluminium oxide or alumina (Al ₂ O ₃)	1,40 %			
	Other oxides (potassium, calcium, sodium, phosphorus, ...)	2,40 %			
	Water	0,08 %			
Apparent density		2.500-300 kg/ m ³			
Cation exchange capacity		3,51 meg/100g			
Frost resistance (UNE-EN ISO 10545-12-1997)		Visible damage. Not recommended for use in areas with a high risk of frost.			
Slip resistance	UNE-EN ISO-12600-3-2003	Class 3			
	DIN 51097-4-2019	Class B			
	DIN 51130-2-2014	R-12			

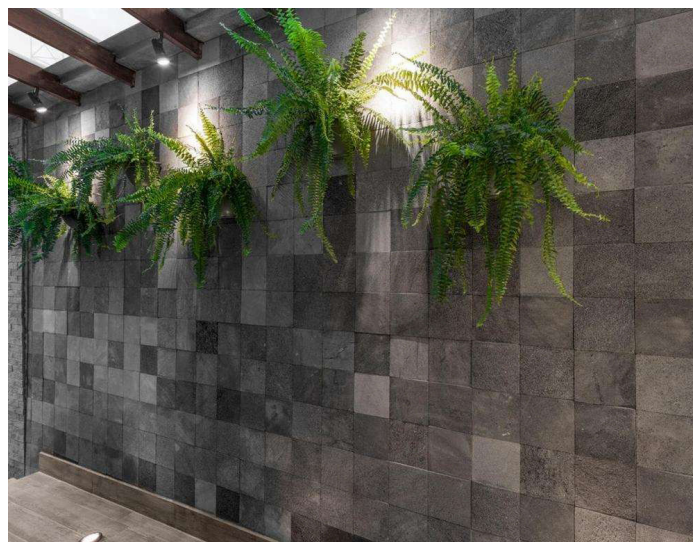
BLACK LAVA stone (also known as “Candi stone” or “Pedra Hitam preta”) presents a range of shades that goes from black to ash gray, passing through different anthracite or lead tones, with a natural beauty that helps enhance the decoration of any space. This chromatic variety gives it an appeal that makes it chosen by the most prestigious and important decorators and designers in the world.

BLACK LAVA stone can therefore undergo color variations and occasional “aesthetic imperfections,” which are nothing more than a particular characteristic of the natural stone and its handcrafted finish, adding an extra touch of aesthetic beauty to this highly appreciated natural product.

The surface is rough, with saw marks and a high presence of micro holes, resembling a cavernous-spongy texture, formed by air and gas bubbles during its formation, which makes it highly slip-resistant. These spongy micro holes result in an apparent density of around 2,500-3,000 kg/m³, but this varies greatly depending on the amount and size of the holes, leading to a high water absorption rate of over 20%.

BLACK LAVA stone can be considered one of the most natural types of stone. The slabs of this black stone originate from Indonesia and have been widely used in many different applications. As a natural stone, cut into tiles, it is ideal for cladding any home, providing the natural beauty and texture of the stone.

It is important to know that the product is very porous, with cavities in the form of micro holes that give it great permeability, which may result in some maintenance challenges. Darker, grayish, or even brownish stains may also appear—mineral stains for which there is a tolerance parameter. Another special characteristic is the possible slight variation in size, with a maximum range of +/- 1.5 mm.



THE INSTALLATION OF “BLACK LAVA” STONE AND ITS TREATMENT

Given the various potential uses of the material, we have decided to separate the main uses by dividing them into non-humid interior environments and humid interior and exterior environments. Since BLACK LAVA volcanic stone is a very porous and absorbent material, it was decided in both cases to also apply a prior hydro-oil repellent treatment to reduce staining during installation.

This treatment will also reduce water absorption and, upon completion of the installation, will improve the cleaning and removal of any residual installation and grouting materials that may have splashed onto the stone.

We have experimented with products from various different brands available on the market, which are listed below. These products fulfill this function perfectly, but there are other brands that offer similar alternatives to those we recommend.

1. NON-HUMID INTERIOR ENVIRONMENTS

Given the roughness and porosity of its surface, BLACK LAVA stone must be treated beforehand with a hydro-oil repellent product to prevent later staining and soiling issues when using adhesive and grout products.

The pre-treatment products we have tested are **LITOKOL's LITOSTONE PROTECTOR** and **FILA's PRW200**. Both products, as transparent protective agents that barely alter the appearance of the stone, provide special protection to our BLACK LAVA stone, preventing soiling during the installation and grouting processes. This pre-treatment is very important because without it, the porosity of the stone would make its final cleaning after installation extremely difficult. The protector was applied with a brush in two coats. The time between the two applications was approximately two hours, thus minimizing the absorption of the stones, which are extremely porous as previously mentioned. In the photo, you can see the darkening effect after applying the protector while the product is still fresh, preventing both liquid absorption and staining. After the protector dries, the color of the stone becomes slightly lighter, although it remains slightly tinted compared to untreated stone.



untreated = absorbent

treated = non-absorbent

The material must be adhered with a cement-based adhesive, such as the product **POWERFLEX K50** in gray by the company **LITOKOL**, classified as C2TES1 according to the EN 12004 standard. There is a wide variety of equivalent products from brands such as **MAPEI**, **KERAKOLL**, **PUMA**, or other brands available on the market.

For grouting, similarly use products specifically developed for this purpose, preferably epoxy-based.

Finally, once the installation is completed, since BLACK LAVA stone will have splashes from the adhesive and grouting materials, it should be cleaned with products such as **DETERTEK PRO** by **FILA** or equivalent products from other brands.

2. HUMID ENVIRONMENTS, BOTH INDOORS AND OUTDOORS (showers, facades, ponds, pools)

If volcanic stone is to be installed in humid indoor areas such as bathrooms or showers, or in outdoor spaces like facades, ponds, pool edges, and interiors, etc., we recommend, as in the previous case, always applying the hydro-oil repellent treatment with **LITOSTONE PROTECTOR** or another product with similar characteristics before grouting.

The material must be adhered using a high-adhesion cement-based adhesive. We have tested the two-component reactive flexible adhesive **LITOELASTIC EVO** in gray from **LITOKOL**, classified as R2T according to the EN 12004 standard. This adhesive is extremely elastic and offers a first barrier to water infiltration in the underlying layers. However, equivalent products from leading brands in the industry are also available.

Since the installation is done in areas with frequent or constant contact with water, it is necessary to grout the tiles using a waterproof epoxy mortar, which seals the gaps between the installed stone slabs. This prevents water from penetrating the inner layers of the installation, while also avoiding dirt accumulation and the potential growth of mold and bacteria. For this grouting process, we used the two-component epoxy mortar **STARLIKE EVO** from **LITOKOL**, classified as RG according to the EN 13888 standard, and we grouted with the color **GRAPHITE BLACK 140** in grayish tones. However, as mentioned before with the fixing products, there are many brands on the market that offer equivalent products for this purpose.



After the installation of BLACK LAVA stone, it is necessary to treat it with a high-resistance water-repellent product. We have tested the aliphatic polyurethane resin **ORFAPOL PLUS** from the brand **PAVISTAMP**, which we also use on our BALI STONE, with excellent results. However, there are also other products, such as **SALVATERRAZZA** from the brand **FILA**, which protects and repairs small cracks by waterproofing the stone and its joints, thus preventing water penetration and damage from chlorine or saltwater in pools of this type. Many other manufacturers also offer similar products on the market.

It is important to note that these treatments darken and even out the stone, giving it a wet-look effect.

Finally, as mentioned earlier, once the installation is complete, since BLACK LAVA stone may retain splashes from the adhesive and grouting materials, its surface must be cleaned with products such as **DETERTEK PRO** from the **FILA** brand or equivalent products from other brands.

The solutions provided in this document offer our BLACK LAVA stone tiles maximum long-term protection, while also ensuring a safe installation with innovative and reliable products.



Note: The use of products from the different brands mentioned in this document in no way constitutes an added guarantee from our side, nor does it imply any liability. The sole purpose of mentioning and recommending them is to provide installers with products that, when properly applied according to the manufacturer's instructions, facilitate the installation of our product as well as its maintenance. We are not responsible for issues resulting from improper installation and maintenance of our products, which must be handled by a professional under their own responsibility and with the guarantees of their trade. The professional overseeing the installation of our product must be familiar with the characteristics of the material they are working with, as well as the products and techniques that will facilitate and optimize the result of their work. Therefore, at their own discretion and based on their experience, they may choose other products with equivalent characteristics to those mentioned here.