Fugalite® Eco Invisibile

Eco-friendly, easy to apply and easy to clean photochromatic vitrified epoxy grout and adhesive, for joints from 0 to 3 mm, guarantees the aesthetic continuity of the glass mosaic, ideal for use in GreenBuilding. Very low-VOC emissions, solvent-free, it safeguards the health of operators.

Fugalite® Eco Invisibile is ultra-fine recycled micro glass beads, with a high refractive power, ideal for bonding and grouting glass mosaic, wood-effect tiles, and stone tile effect coverings without compromising the aesthetic, functional and hygenic continuity. Fugalite® Eco Invisibile is the solution to keep intact the beauty of artistic glass mosaics and blends.

GREENBUILDING RATING®

Fugalite® Eco Invisibile
- Category: Organic Mineral products
- Laying ceramic tiles and natural stone
- Rating: Eco 3

eco3	Regional Mineral ≥ 30 %	Low Emission IAQ VOC Indoor Air Quality	SLV REDUCED Solvent ≤ 5 g/kg	Low Ecological Impact	Health Care
		✓	✓		✓
		Very low VOC emissions	Solvent-free		non-toxic and non-hazardous

RATING SYSTEM ACCREDITED BY CERTIFICATION BODY SGS

PRODUCT STRENGTHS

- Ideal to bond and grout glass mosaic
- Ideal to grout thin rectified slabs with narrow joints or paper joints
- Internal floors and walls
- The perfect roundness of the micro glass beads gives an excellent workability
- Ideal to provide bright reflections and shades when mixed with Fuga-Glitter Gold and Silver
- Impermeable to water, stains and dirt
- Prevents the development of mould and bacteria

ECO NOTES

- It contains micro glass beads made from recycled glass
- The bacteriostatic and fungistatic properties are obtained without using biocides

AREAS OF USE

Use
Water-resistant grouting of joints with high chemical and mechanical resistance and a high level of hardness; bonding of glass mosaic.

Materials to be grouted:
- vitrified tiles, low thickness slabs, ceramic tiles, klinker, cotto, glass and ceramic mosaic, of all types and formats
- recomposed materials

Flooring and walls in indoor, domestic applications, subject to permanent or occasional contact with chemical substances, in environments subject to heavy traffic, heated floors, also in areas subject to thermal shock and freezing.

Do not use
In commercial and industrial applications, on porous flooring for which more specific or alternative chemical resistances are required compared with those listed in the chemical resistances table, to grout elastic expansion or fractionising joints, in swimming pools, thermal water baths and fountains, on substrates that are not completely dry and subject to continuous moisture rising, for environments subject to heavy traffic.

** Centro Ceramico Bologna has passed the test for Resistance to stains following UNI EN ISO 10545-14 (Test Report N° 3685/11)

KERAKOLL
The GreenBuilding Company

INSTRUCTIONS FOR USE

Preparation of substrates
As a grout: before grouting joints, check that tiles have been fixed correctly and are anchored perfectly to the surface. Substrates must be perfectly dry. Grout joints in accordance with the recommended waiting time indicated on the relative data sheet for the adhesive used. For mortar surfaces, wait at least 7 – 14 days depending on screed thickness, ambient weather conditions and on the level of absorption of the covering and the substrate. Any water or moisture rising can cause vapour pressure to accumulate, which may in turn loosen the tiles on account of the complete non-absorbency of the grout or of the tiles themselves. Joints must be free from any excess adhesive, even if already hardened. Furthermore they must be of an even depth for the whole width of the tile covering, thereby ensuring maximum chemical resistance. Any dust and loose debris must be removed from joints by carefully cleaning them with vacuum cleaner. The surface of the coating material to be grouted must be dry and free from dust or building dirt; any residual protective coatings must first be removed using specific products.
Before grouting joints, check the cleanability of the tile covering, as porous or highly micro-porous surfaces may make cleaning difficult. It is advisable to perform a preliminary test on tiles not to be laid or in a small, concealed area.
As an adhesive: substrates must be compact and solid, free of dust, oil and grease, dry and free from moisture rising, with no loose debris or flaky parts such as residues of cement, lime and paint coatings, which must be completely removed. The surface must be stable, without cracks and have already completed the curing period of hygrometric shrinkage. Uneven areas must be corrected with suitable smoothing and finishing products. On screeds and plasters which are highly absorbent and have dusty, flaky surfaces, it is advisable to apply one or more coats of Primer A Eco water-based, eco-friendly surface isolation primer, following the instructions provided, in order to reduce the water absorption and improve spreadability of the adhesive.

Preparation
Fugalite® Eco Invisibile is prepared by mixing together parts A and B from the bottom upwards, using a low-rev (≈ 400/min.) helicoidal agitator, respecting the preset ratio of 2.82 : 0.18 of the packs. Pour part B into the bucket containing part A, being careful to mix the two parts uniformly until a smooth, even coloured mixture is obtained. In any case, mix only enough grout that can be used in full within 45 min. at +23 °C, 50% R.H. Fugalite® Eco Invisibile product buckets must be stored at a temperature of approx. +20 °C for at least 2-3 days before use. Higher temperatures make the mixture too fluid and shorten hardening times, while lower temperatures make the mixture harder to spread and slow down setting times. At temperatures of less than +5 °C, the product will no longer set.

Application as grout: Fugalite® Eco Invisibile must be applied evenly on the tile covering with a hard rubber trowel. Grout material has to be completely filled between entire joint areas, the application has to be done diagonally with respect to the joints. If grouting is to be on joints only, it is recommended that a test be carried out in advance before laying to ensure the surface can be properly cleaned. Remove most of the excess grout immediately using the trowel, leaving only a thin film on the tile.
Cleaning as grout: begin cleaning the tilework when the grout is still fresh. On completion, clean up the surface using a thick, large-sized sponge, preferably made of cellulose, damped in clean water to avoid removing grout from the joints. Use circular movements to soften the film of grout on the tiles and finish cleaning the joint surface. Specific high-dispersion polymers ensure all grout residues are removed using only a small amount of water. The use of an excessive amount of water when cleaning would impair the final chemical resistances. It is important to rinse frequently and make sure clean water is used at all times, using appropriate trays and grills with cleaning rollers (wash-boy). If necessary, replace the sponge or felt cleaning pad when saturated with grout. Final cleaning should be done, by sponge applied in a diagonal directions to avoid material coming out from the joints. Then clean the coatings completely with a cotton cloth, absorbent paper or a wet vacuum to ensure complete removal of any residual streaks of resin. Avoid accumulations of water on the grout before it hardens. Any streaks can be removed using Fuga-Soap Eco specific soap, diluted 1 part to 2 in water at least 48 hours after grouting (at +23 °C). Leave to work on the surface for 10 - 15 min., then use a felt cleaning pad, rinse with water and wipe with a dry cloth, absorbent paper or a wet vacuum. Do not walk on floors that are still damp as dirt could still stick to them.

Application as an adhesive: Fugalite® Eco Invisibile can be applied with a suitable toothed trowel, to be chosen according to the size and type of mosaic. Using the smooth part of the trowel, apply a fine layer of product, pressing down onto the surface in order to ensure maximum adhesion, after which the thickness can be adjusted as required by tilting the trowel at an angle. Apply the adhesive to a surface area that will allow fixing of the coating material within the open time indicated. Press down the pieces of mosaic using a rubber coated trowel to allow for maximum coverage of the surface.

Cleaning
Residual traces of grout can be removed from tools with water before the product has hardened.

SPECIAL NOTES

Gold or silver Fuga-Glitter can be used as an additive in Fugalite® Eco Invisibile to create a metalized decorative effect; add 1 – 3 tins to every 100g pack of grout to obtain the required aesthetic finish.
Adding Fuga-Wash Eco to the cleaning water gives a better detergent action on coating materials, keeps the sponge cleaner, improves the surface finish of grouting and cleans effectively without the need for rinsing.

ABSTRACT

High chemical and mechanical resistance grouting of ceramic and vitrified tiles, glass mosaic using a certified, eco-friendly, high-slide, easy-to-clean, photochromatic, vitreous grout that is bacteriostatic and fungistatic, water and stain proof with a high level of chemical and mechanical resistance and GreenBuilding Rating® Eco 3, such as Fugalite® Eco Invisibile by Kerakoll Spa. Joints must be dry and free from traces of adhesive and loose debris. Use a trowel or hard rubber float to apply the grout and suitable sponges and clean water to clean joints on completion. Joints of ____ mm width and tiles ____ x ____ cm in size will give an average coverage of approx. ____ kg/m². Existing elastic expansion and fractionizing joints must be respected.

KERAKOLL
The GreenBuilding Company

TECHNICAL DATA COMPLIANT WITH KERAKOLL QUALITY STANDARD

Appearance	part A coloured paste / part B straw-coloured liquid	
Specific weight	part A ≈ 1.69 kg/dm³ / part B ≈ 0.99 kg/dm³	UEAtc
Viscosity	≈ 80200 mPa · s, rotor 93 RPM 10	Brookfield method
Mineralogical nature of inert material	silicate - crystalline (part A)	
Chemical nature	epoxy resin (part A) / polyamines (part B)	
Grading	≈ 0 – 250 µm	
Shelf life	≈ 24 months in the original packaging	
Warning	protect from frost, avoid direct exposure to sunlight and sources of heat	
Pack	monopack part A 2.82 kg / part B 0.18 kg	
Colour	Neutral	
Mixing ratio	part A : part B = 2.82 : 0.18	
Specific weight of the mixture	≈ 1,55 kg/dm³	
Pot life at +23 °C	≥ 45 min.	
Temperature range for application	from +5 °C to +30 °C	
joint width	from 0 to 3 mm	
Foot traffic	≈ 24 hrs	
Grouting after fixing:		
- with Fugalite® Eco Invisibile on coating materials	immediate	
- with Fugalite® Eco Invisibile on floors	as soon as foot traffic is allowed	
- with adhesive	see characteristics of adhesive	
- mortar	≈ 7 – 14 days	
Interval before normal use	≈ 3 days (mechanical resistance) / ≈ 7 days (chemical resist.)	
Coverage:		
- as an adhesive	≈ 2 – 4 kg/m²	
- as a grout	see Coverage table	

Values taken at +23 °C, 50% R.H. and no ventilation. Data may vary depending on specific conditions at the building site, i.e.temperature, ventilation and absorbency level of the surface and of the materials fixed.

COVERAGE TABLE

	Format	Thickness	grammes/m² joint width		
			1 mm	2 mm	3 mm
Mosaic	25x25 mm	3 mm	≈ 395	≈ 790	≈ 1185
	50x50 mm	4 mm	≈ 270	≈ 540	≈ 810
Natural stones, ceramic tiles and vitrified tiles	100x100 mm	6 mm	≈ 205	≈ 410	≈ 615
	100x150 mm	6 mm	≈ 170	≈ 340	≈ 510
	200x100 mm	6 mm	≈ 155	≈ 310	≈ 465
	300x300 mm	7 mm	≈ 80	≈ 160	≈ 240
	300x450 mm	9 mm	≈ 85	≈ 170	≈ 255
	300x600 mm	9 mm	≈ 80	≈ 160	≈ 240
	600x600 mm	10 mm	≈ 60	≈ 120	≈ 180
	1000x1000 mm	12 mm	≈ 40	≈ 80	≈ 120
	1200x600 mm	16 mm	≈ 70	≈ 140	≈ 210
	1200x2400 mm	16 mm	≈ 35	≈ 70	≈ 105
	1800x900 mm	25 mm	≈ 70	≈ 140	≈ 210
	1800x1200 mm	25 mm	≈ 60	≈ 120	≈ 180

The data provided must be considered merely as an indication of the grout coverage, averaged out based on our experience and taking into account normal site wastage. The following may vary according to specific conditions at the building site: roughness of tile, excess of residual product, lack of surface flatness, temperatures, seasonal conditions.

Fugalite® Eco Invisibile Code: P877 2018/06 IN

KERAKOLL
The GreenBuilding Company

PERFORMANCE

VOC INDOOR AIR QUALITY (IAQ) - VOLATILE ORGANIC COMPOUND EMISSIONS		
Conformity	EC 1-R plus GEV-Emicode	GEV Certified 4450/11.01.02
HIGH-TECH		
Static modulus of elasticity	≈ 570 N/mm²	ISO 178
Resistance to abrasion	≈ 215 mm³	EN 12808-2
Water absorption after 240 min.	≈ 0,04 g	EN 12808-5
Working temperature	from -40 °C to +80 °C	
Colour Fastness	1	UNI EN ISO 105-A05
Resistance to fungal contamination	class F+	CSTB 2011-002
Resistance to bacterial contamination	class B+	CSTB 2010-083
Porcelain tiles/concrete tensile strength	≥ 1,5 N/mm²	EN 1348
Initial shear strength	≥ 5 N/mm²	EN 12003
Shear strength after water immersion	≥ 3 N/mm²	EN 12003
Open time: tensile adhesion	≥ 2 N/mm²	EN 1346
Resistance to iodine stains	class 4	ISO 10545-14
Resistance to olive oil stains	class 5	ISO 10545-14
Resistance to chromium stains	class 3	ISO 10545-14
LEED®		
LEED® Points Contribution*	LEED® Points	
MR Credit 5 Regional Materials	up to 2	GBC Italia
QI Credit 4.1 Low-Emitting Materials	up to 1	GBC Italia

Values taken at +23 °C, 50% R.H. and no ventilation. Data may vary depending on specific conditions at the building site.

** LEED® is an environmental performance measurement system designed for new and existing commercial, institutional, and domestic buildings, based on energy and environmental principles commonly recognized and accepted by the international scientific community. The LEED® building sustainability assessment system is a voluntary system. To calculate the score, consult the rules provided by the Italy LEED® Manual (edition 2009). © 2010, Green Building Council Italy, U.S. Green Building Council, all rights reserved*

CHEMICAL RESISTANCE (EN 12808-1)

Acids	Concentration	Permanent contact	Occasional contact
Acetic	2,5%	••	•••
	5%	•	••
	10%	•	•
Hydrochloric	37%	•••	•••
Citric	10%	••	•••
Formic	2,5%	••	•••
	10%	•	•
Phosphoric	50%	•••	•••
	75%	•	••
Lactic	2,5%	••	•••
	5%	•	••
	10%	•	•
Nitric	25%	••	•••
	50%	•	•
Oleic	100%	•	•
Sulphuric	50%	•••	•••
	100%	•	•
Tannic	10%	••	•••
Tartaric	10%	••	•••

Legend
- ••• Excellent
- •• Good
- • poor

Values taken at: – ambient +23 °C / 50% R.H. – chemical aggressive agent +23 °C

Fugalite® Eco Invisibile Code: P877 2018/06 IN

KERAKOLL
The GreenBuilding Company

CHEMICAL RESISTANCE (EN 12808-1)

Foodstuffs	Main foodstuffs (temporary contact)
Vinegar	••
Citrus fruits	••
Ethyl alcohol	•••
Beer	•••
Butter	•••
Coffee	•••
Casein	•••
Glucose	•••
Animal fat	•••
Fresh milk	••
Malt	•••
Margarine	•••
Olive oil	••
Soya oil	••
Pectin	•••
Tomato	••
Yoghurt	••
Sugar	•••

Fuels and Oils	Permanent contact	Occasional contact
Petrol	•	•••
Diesel oil	••	•••
Coal tar oil	••	••
Mineral oil	••	•••
Petroleum	••	•••
Mineral spirit	•	•••
Turpentine	•	•••

Alkalis and Salts	Concentration	Permanent contact	Occasional contact
Oxygenated water	10%	••	•••
	25%	•	•••
Ammonia	25%	•••	•••
Calcium chloride	Saturated Sol.	•••	•••
Sodium chloride	Saturated Sol.	•••	•••
Sodium hypochlorite (Active chlorine)	1,5%	••	•••
	13%	•	••
Caustic soda	50%	•••	•••
Aluminium sulphate	Saturated Sol.	•••	•••
Potassium hydroxide	50%	•••	•••
Potassium permanganate	5%	••	•••
	10%	•	••

Legend
••• Excellent
•• Good
• poor

Values taken at: – ambient +23 °C / 50% R.H. – chemical aggressive agent +23 °C

Fugalite® Eco Invisibile Code: P877 2018/06 IN

KERAKOLL
The GreenBuilding Company

CHEMICAL RESISTANCE (EN 12808-1)

Solvents	Permanent contact	Occasional contact
Acetone	•	•
Ethyl alcohol	••	•••
Benzol	•	••
Chloroform	•	•
Methylene chloride	•	•
Ethylene glycol	•••	•••
Perchloroethylene	•	••
Carbon tetrachloride	•	••
Tetrahydrofuran	•	•
Toluol	•	••
Trichloroethylene	•	•
Xylene	•	••

Legend
••• Excellent
•• Good
• poor

Values taken at: – ambient +23 °C / 50% R.H. – chemical aggressive agent +23 °C

RESISTANCE TO STAINS (ISO 10545-14)

Staining agents	Time exposed to staining agent: 24 hours	Time exposed to staining agent: 30 min.
Red wine	5	5
Mineral oil	5	5
Tomato ketchup	2	5
Mascara	3	5
Coffee	2	5
Hair dye	1	2

Legend

5 can be cleaned under a running hot tap while gently rubbing with a sponge
4 can be cleaned with a mild detergent while gently rubbing with a sponge
3 can be cleaned with a basic detergent while vigorously rubbing with a sponge
2 to clean, treat first with a solvent or aggressive acid or basic solution, then vigorously rub with a sponge
1 cannot be cleaned by any of the aforementioned methods

WARNING

- Product for professional use
- abide by any standards and national regulations
- use at temperatures between +5 °C and +30 °C
- use packs which have been stored for 2/3 days before use at +20 °C
- respect the mixing ratio of 2.82 : 0.18. For partial mixing, weigh the two parts precisely
- workability times may vary considerably, depending on ambient conditions and the temperature of the tiles
- do not walk on floors that are still damp as dirt could still stick to them
- do not fix on substrates subject to moisture rising or which are not completely dry
- if necessary, ask for the safety data sheet
- for any other issues, contact the Kerakoll India Helpline (Toll Free) 1800-200-6550 - info@kerakollindia.com

Fugalite® Eco Invisibile Code: P877 2018/06 IN

KERAKOLL
The GreenBuilding Company

M/S. Kerakoll India Pvt. Ltd.
Office No. 202, A-Wing, Business Square
Solitaire Park , Opp Apple Heritage ,
Andheri Kurla Road, Chakala Andheri (E),
Mumbai-400 093, Maharashtra, India.
Kerakoll India Helpline (Toll Free) 1800-200-6550
info@kerakollindia.com - www.kerakoll.com