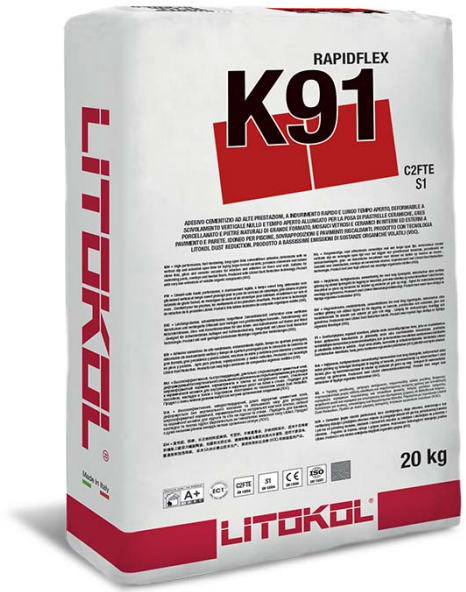
Rapidflex K91

Technical specifications



HIGH-PERFORMANCE, DEFORMABLE CEMENTITIOUS ADHESIVE, QUICK-SETTING, WITH NO VERTICAL SLIP AND EXTENDED OPEN TIME FOR THE INSTALLATION OF CERAMIC AND PORCELAIN TILES, PORCELAIN STONEWARE AND LARGE NATURAL STONE SLABS, VITREOUS AND CERAMIC MOSAICS ON INTERIOR AND EXTERIOR WALLS AND FLOORS. SUITABLE FOR SWIMMING POOLS, OVERLAYING AND UNDERFLOOR HEATING. PRODUCT WITH VERY LOW VOLATILE ORGANIC COMPOUND EMISSION RATE.

Product description

- Product with very low volatile organic compound (VOC) emission rate. Compliant with class EC1^{PLUS} according to the EMICODE protocol and class A+ (Émission dans l'air intérieur - French regulations)
- Versatile product. Can also be used on underfloor heating and over existing ceramic and porcelain tiles
- The special additives give the product a very fluid texture and facilitate application using a notched trowel
- Extended workability of mix (about 45 minutes), which facilitates application on large surfaces
- Quickly develops high mechanical strength, setting to light foot traffic in just 3 hours
- Suitable for interior and exterior floor and wall applications, even in severe operating conditions
- Bonding on all types of ceramic, porcelain and mosaic tiles, in interiors on floors and walls

PACKAGES

20 kg bags - 1,200 kg standard pallet

INTENDED USE

Installation environments

Interiors - exteriors
Floors and walls
Underfloor heating
Façades
Overlaying
Terraces and balconies
Residential, public, commercial building

Suitable materials

Ceramic and porcelain tiles
Thin laminated stoneware slabs
Recomposed stone made with resin or cement
Terracotta - Clinker
Marble – Granite – Stone
Natural stones
Slabs 320x160 cm
Large sizes

Suitable substrates

Cement screeds
Self-levellers
Skim coats
Existing tiles
Waterproofing systems
Underfloor heating systems
Concrete
Gypsum
Fibre cement slabs
Gypsum and anhydrite
Aerated concrete
Plasters
Insulating panels
Lightweight panels

For example, it can also be used to install suitable materials in the following areas:

Interior floors in residential and public/commercial buildings (walking areas)

Substrates	Longest allowable tile side (cm)
Cement or Litocem/Litocem Pronto-based non-heating screeds	up to 150
Cement or Litocem/Litocem Pronto-based heating screeds	up to 120
Sulphate-based (anhydrite) screed without heating (1)	up to 150
Sulphate-based (anhydrite) screed with heating (1)	up to 120
Cast-in-place concrete (2)	up to 150
Pre-cast concrete	up to 60
Pre-existing tiled, mosaic, stone, marble tile substrates (3)	up to 120
Pre-existing substrates with organic adhesive residue (4)	up to 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Plus	up to 120
Substrates with separation layer or membrane	up to 120

Interior floors in public/commercial and industrial buildings bearing heavy loads

Substrates	Longest allowable tile side (cm)
Cement or Litocem/Litocem Pronto-based non-heating screeds	up to 150
Cast-in-place concrete (2)	up to 120
Pre-cast concrete	up to 90
Pre-existing tiled, mosaic, stone, marble tile substrates (3)	up to 120
Pre-existing substrates with organic adhesive residue (4)	up to 120
Substrates waterproofed with Litoproof Plus	up to 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Extreme	up to 120
Substrates with separation layer or membrane	up to 120

Interior walls in residential, public/commercial and industrial buildings

Substrates	Longest allowable tile side (cm)
Lime/cement plaster	up to 150
Gypsum-based plaster (1)	up to 150
Cast-in-place concrete (2)	up to 150
Pre-cast concrete	up to 150
Pre-existing tiled, mosaic, stone substrates (3)	up to 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Plus	up to 150
Fibre cement and cement panels	up to 120
Waterproof and non-waterproof gypsum slabs (5)	up to 90
Elements in autoclaved aerated concrete (6)	up to 90

Thermal insulating and soundproof panels - Lightweight panels	up to 90
Outdoor paving in residential, public/commercial and industrial buildings	
Substrates	Longest allowable tile side (cm)
Cement or Litocem/Litocem Pronto-based non-heating screeds	up to 120
Cast-in-place concrete (2)	up to 120
Pre-cast concrete	up to 60
Pre-existing tiled, mosaic, stone, marble tile substrates (3)	up to 120
Substrates waterproofed with Aquamaster, Elastocem, Coverflex, Litoproof Extreme	up to 120
Substrates with separation layer or membrane	up to 120
Exterior walls	
Substrates	Longest allowable tile side (cm)
Lime/cement plaster	up to 90
Cast-in-place concrete (2)	up to 90
Pre-cast concrete	up to 90
Pre-existing tiled, mosaic, stone, marble tile substrates (3)	up to 30
Substrates waterproofed with Aquamaster, Elastocem, Coverflex	up to 90
Fibre cement panels	up to 60

Key

(1) After treatment with Primer C or Primer X94. Maximum humidity = 0.5%.
(2) Curing time: minimum 6 months.
(3) After cleaning and degreasing with Litoscrub EVO.
(4) After treatment with the adhesion promoter primer Prepara Fondo EVO.
(5) After treatment with Primer C or Primer X94 for non-waterproof gypsum.
(6) After treatment with Primer X94.

INSTALLATION PLANNING

The only way to guarantee the long-lasting performance of ceramic and porcelain tile installations is to properly plan the process. It is therefore advisable to consult the national regulations in force in each country, for example standard UNI 11493 in Italy, which provides all necessary instructions regarding the choice of materials, correct planning, use and installation, so as to ensure all quality, performance and durability standards are safely met.
When installing large tiles or low thickness laminated porcelain stone slabs, we recommend consulting paragraphs 7.13.8 and 7.13.9 of Standard UNI 11493. Moreover, certain producers of thin slabs provide installation manuals indicating the adhesive classes that need to be used depending on the size, characteristics and intended use of the slabs.
Some of the general precautions that need to be followed are listed below as an example.

Substrates

Before installation, check that substrates are clean, free of loose fragments, properly dried and cured, flat and level, and that mechanical strength requirements based on the intended use have been met.

Worksite conditions

Check the suitability of the temperature, humidity, light conditions etc. at the time of the product's application.

Materials

Check that all materials used for tiling (ceramic materials, levelling systems, adhesives, grouts, waterproofing products, etc.) are suitable for the intended use and have been correctly stored.

Expansion joints
Check that the perimeter, expansion, divider and structural elastic joints have been correctly designed and prepared. Usually, separation joints should be provided for sections of 20/25 m^2 or 9-15m^2 outdoors. For exteriors, make sure joints are properly waterproofed and sealed.

Back-buttering
For exterior installations, large tiles, floors with intense or heavy traffic, vibrating supports and situations exposed to high temperature fluctuations, the adhesive mortar must be applied to both the substrate and the back of the tiles so as to obtain a solid bed of adhesive without any air bubbles.

Joints
In any type of ceramic and porcelain tiling, suitably sized joints must be created based on the following parameters:

- Type, format and size tolerance of tiles
- thermal expansion coefficients of tiling materials
- mechanical properties of installation materials
- position and trajectory of joints
- mechanical features of substrate
- Intended use and operating conditions

Butt joints are not allowed. Any plastic spacers must be removed before grouting.

PREPARATION OF SUBSTRATES

The substrates must be clean, solid, compact, crack-free, properly cured and without rising damp.
If it becomes necessary to create a slope, for example on balconies or footpaths, a levelling layer can be created using suitable levelling products such as Litoplan Smart.

- Excessively porous and absorbent or powdery substrates must be treated with the consolidating primer Primer C
- Smooth and compact substrates such as smoothed concrete, existing ceramic or agglomerate coverings, must be treated with the adhesion promoter primer Prepara Fondo EVO after being suitably degreased with specific detergents such as Litoscrub EVO
- In the case of anhydrite screeds, check for the presence of a suitable vapour barrier in order to prevent rising damp. Use a carbide method hygrometer to check that the residual humidity is less than 0.5%. The surface must be sanded and treated with Primer C
- Any cracks must be repaired with Multifondo EVO, sprinkling the fresh surface with sand or dried quartz with granulometry 0.4-1 mm

In any case, the technical data sheets must be consulted for correct use of the indicated products.

MIX RATIO

White 20 kg (1 bag) – Water 4.6-5.8 l (23-29%)
Grey 20 kg (1 bag) – Water 4.0-5.2 l (20-26%)

PREPARING THE MIX

Pour the right quantity of water, depending on the application, into a clean container and slowly add the powder, stirring with an electric drill with mixing paddle until a consistent mix is obtained without lumps.
Let the mix rest for about 5 minutes and then briefly mix again for a few seconds.
The pot life is about 45 minutes at a temperature of +23°C, therefore it is

advisable to mix only the quantity of material that can be applied within this period of time.
Do not use quantities of mixing water greater than those indicated to avoid product shrinkage during curing and the lowering of the final mechanical properties.
Do not add more water to the mix once setting has begun.

APPLICATION

Spread the mix onto the substrate using the smooth part of the trowel to create a layer approximately 1 mm thick, and then straight after apply the product using the notched part of the trowel.
The trowel notch size will depend on the size of the tiles.
A back coverage of 65-70% of slabs is nonetheless required for interior installations, and 100% of slabs for exterior installations or floors subject to heavy traffic.
In exterior installations or areas subject to high stress, the adhesive should also be applied to the back of the slabs (back-buttering method).
The tiles must be laid on the adhesive when fresh, firmly pressed to ensure good contact.
The product's workability in normal temperature and humidity conditions is approximately 45 minutes.
High temperatures will shorten it, low temperatures will lengthen it.
The product's open time in normal temperature and humidity conditions is approximately 30 minutes.
Very warm or windy climates, or particularly absorbent substrates may drastically reduce it to a few minutes. It is therefore recommended to regularly check that the adhesive has not skinned over.
If it has skinned over, the adhesive will need to be combed again using the notched trowel.
The tiles must be installed with joint widths suitable for their size.
Leave a space of at least 5 mm near walls or any surface elevations.
Take account of any expansion, perimeter, divider or structural joints.
In the case of mosaics mounted on adhesive paper or film, this must be removed at least 24 hours after installation once the adhesive has sufficiently set, to prevent the detachment of the tiles.
The tiled surface must be protected for at least 24 hours against any rain wash, and for approximately 5-7 days against any frost and direct sunlight.
Tiled surfaces are ready for use after about 24 hours.

FOCUS

Marble, natural and recomposed stones
Materials subject to deformation or stains due to water absorption require a quick-setting (C2F) or reactive (R2) adhesive. Marble and natural stones, even if similar in nature, may have different features. In case of doubt, contact the Litokol S.p.A. Technical Help Service for detailed information or to perform a laboratory test. Natural stone slabs with reinforced backing (resin, mesh, etc.) or specific treatments (for example anti-rising damp, etc.), unless otherwise prescribed by the manufacturer must be tested for compatibility with the adhesive. Before installation, check for any traces of dirt or material deposits on the back of the slabs. If so, these must be removed.
Façades
For exterior wall installations (H>3 m) where tiled surfaces are subject to high levels of tension in expansion joints due to the variations in air temperature and relative humidity and considering the safety risks posed by any eventual

detachments, it is recommended to consult the Litokol S.p.A Technical Help Service in order to precisely define the safest type of installation. Referring to Standard UNI 11493 – 7.13.7, follow these general guidelines: the installation substrate must guarantee a cohesive tensile strength of ≥ 1.0 N/mm^2. For coverings with side > 30 cm the designer must evaluate the potential need to use suitable mechanical fasteners for safety purposes. Always spread the adhesive directly onto the back of the material also.

Underfloor heating

After at least 4 days from installation of the screed developed with Litocem or Litocem Pronto, the heating system can be used with a variable supply water temperature between +20°C and +25°C, kept constant for at least 3 days.

Then set the maximum design temperature and hold it for another 4 days. At the end of this cycle, bring the screed back to ambient temperature and install the covering (see standard EN 1264-4).

GROUTING

The joints can be grouted after about 3 hours.

For grouting, it is possible to use the cementitious grouts Stylegrout 0-8, Stylegrout 3-20, Stylegrout Tech or the ready-to-use polymer mortar FillGood EVO, or, for grouting with special mechanical and chemical resistance, the two-component epoxy grouts Starlike® EVO or EpoxyÉlite EVO.

WARNINGS

- Spread the product at temperatures between +5°C and +30°C inclusive
- Do not spread the product with thickness greater than 15 mm
- Respect the mix ratio
- Do not use the product to install thin slabs with glass fibre mat backing
- The pot life is about 60 minutes at a temperature of +23°C. Be sure to mix only the quantity of product that can actually be used within this period of time
- To identify the adhesive most suitable to the requested type of application, it is recommended to consult the document “Synoptic table for choice of adhesives”
- Do not use the product for applications not stated in this technical data sheet
- If in doubt, contact the Litokol S.p.A Technical Help Service.

SAFETY INFORMATION

Consult the product safety data sheet, available on request.

PRODUCT FOR PROFESSIONAL USE

ITEM SPECIFICATION

#Ceramic and porcelain floor and wall coverings will be installed using a high-performance quick-setting cementitious adhesive with extended open time in class C2FE according to EN 12004, such as Litostone K99 by Litokol S.p.A.

IDENTIFICATION

Appearance	Powder
Colour	White or grey

DATA

Customs code	38245090
Shelf life	12 months in original packaging in a dry place.

APPLICATION DATA

Mix ratio	Water = 23-29% (4.6-5.8 litres of water per 20 kg bag) White
Mix ratio	Water = 20-26% (4.0-5.2 litres of water per 20 kg bag) Grey
Consistency of mix	Creamy mortar
Mix curing time	5 minutes
pH of mix	13
Specific gravity of mix	1.65 kg/dm^3
Bonding time	20 minutes
Pot life	Approx. 60 minutes
Applicable thicknesses	From 1 to 15 mm
Application	Notched trowel
Application temperatures	From +5°C to +30°C
Waiting time for grouting	3 hours
Ready for light foot traffic	3 hours
Ready for use	24 hours
Temperature of use	From -30°C to +90°C
How to clean equipment	With water when product is fresh. Mechanically when product has set.
Consumption	3.5 mm trowel: 1.8 kg/m^2
Consumption	6 mm trowel: 2.5 kg/m^2
Consumption	8 mm trowel: 3 kg/m^2
Consumption	10 mm trowel: 3.5 kg/m^2
Consumption	Back-buttering: 5 kg/m^2

PERFORMANCE

Compliance	EN 12004 – ISO 13007	C2F TE S1
Initial tensile adhesion strength after 28 days	≥ 1.0 N/mm^2	EN 1348
Tensile adhesion strength after water immersion	≥ 1.0 N/mm^2	EN 1348
Tensile adhesion strength after heat action	≥ 1.0 N/mm^2	EN 1348
Tensile adhesion strength after freeze/thaw cycles	≥ 1.0 N/mm^2	EN 1348
Open time	≥ 0.5 N/mm^2 after 30 minutes	EN 1346
Initial tensile adhesion strength after 6 hours	≥ 0.5 N/mm^2	EN 1348
Slip	≤ 0.5 mm	EN 1308
Transverse deformation	≥ 2.5 mm	EN 12002
Resistance to alkalis	Excellent	
Resistance to acids	Low	

NOTES

Data detection at temperature +23 °C, R.H. 50% and with no wind. May vary depending on the specific conditions of the installation site.

Data sheet **n. 036**
Revision **n. 1**
Date: **January 2025**

Litokol

Litokol Lab Spa Via G. Falcone 13/1 42048 Rubiera RE Italy
Tel. +39 0522 622811 info@litokol.com www.litokol.com