CR 166

FLEXIBLE 2-C

Two-component flexible waterproofing slurry

Mineral-dispersion flexible slurry for waterproofing structures and building elements

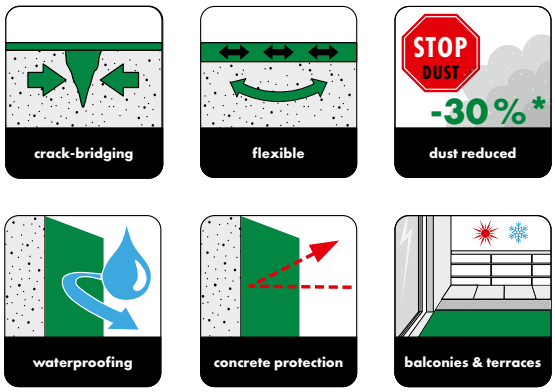
EN 1504-2

EN 14891

CERESIT_CR 166_TDS_07.2022

CHARACTERISTICS

- Highly waterproof
- Fast setting
- Flexible, crack bridging ability even at low temperatures
- Reinforced with fibres
- Weather and frost resistant
- UV resistant
- Dust reduced
- Compatible with sealing tape
- Can be applied by brush, roller, trowel or mechanical spray
- Protects reinforced & standard concrete structures



*30% less dust comparing to CR166 without Fibre Force technology

SCOPE OF USE

Ceresit CR 166 is a two-component flexible slurry, strengthened with fibres and designed for waterproofing and damp-proofing on deformable and non-deformable mineral substrates – suitable for internal and external use on walls, floors and ceilings. Ceresit CR 166 flexibility allows it to bridge ≥ 0,75 mm wide cracks – even in cold conditions.
It can be applied on balconies and terraces (including cantilevered types), permanent and temporary wet rooms, swimming pools, and on walls and floors as a waterproofing layer used underneath coverings associated with tile adhesives.
It can also be used for waterproofing and concrete protection structures embedded in the ground (basement walls, foundations, etc.), plinth zones and water tanks, including drinking water, municipal sewage treatment plants and septic tanks. Ceresit CR 166 coating delays the carbonation process and provides effective anti-corrosion protection for concrete/reinforced concrete land and water structures (e.g. garages, pillars, bridges) against severe atmospheric conditions and aggressive substances dissolved in water (e.g. de-icing salts, seawater). UV resistant. VOC low emission. Proven radon tightness.

SUBSTRATE PREPARATION

Ceresit CR 166 can be applied on the following mineral substrates where even, solid, load-bearing, clean, crack-free and free of substances that may impair adhesion (e.g. fats, bituminous or dust): concrete (over 28 days old), cementitious plaster and composite screeds (over 28 days old), fast hardening screed mortar Ceresit CN 87 (minimum 3 days old), walls made of ceramic bricks, hollows and concrete blocks with flash joints (over 28 days old), cement-fibre boards. Other substrates: gypsum boards, OSB and chipboards (minimum 25 mm thick on floor and 18 mm thick on walls), metal and steel (with appropriate anti-corrosion protection), epoxy coatings and old tiles (indoors only). Remove dirt, layers of low strength, and all paint coatings and release agents. For mineral construction substrates that must be

even and absorbent, it is recommended to use sandblasting or high water pressure for cleaning.
Enlarge the stable cracks and fill them with cement mortar Ceresit CX 5 EXPRESS, or alternatively with epoxy resin. Compensate hollows and irregularly shaped substrates with cement mortar. Chisel out or grind sharp protrusions.
All edges must be cut off or chamfered to approx. 3 cm. Concave corners must be rounded with moulding (e.g. Ceresit CX 5 EXPRESS or Ceresit CX 5 EXPRESS mixed with sand) of 4 cm radius. Ceresit CR 166 requires pre-wetting of the mineral substrate before application, while avoiding formation of puddles. In case of insulation against negative water pressure, substrate must have sufficient strength.
Preparation of other substrates: GB – dedust before application and use Ceresit CT 17 primer, metal and steel with anti-corrosion degrease and vacuum, epoxy coatings degrease and vacuum, OSB and chipboards roughen with sand paper and vacuum, on old tiles (only inside) roughen and degrease – all existing tiles must be strongly bonded with substrate, liter, remove them and fill spaces with Ceresit CX 20.

APPLICATION

The consistency of the mortar should be adjusted in accordance with the application method:
– application by brush or spraying – pour compound B (liquid) into a container, add 2 liters of water (1 liter of water for bucket 16 kg) and add compound A (powder) whilst stirring with a low-speed drill equipped with a mixer.
– application by roller – pour component B (liquid) into the container, add 1 liter of water (0,5 liter of water for bucket 16 kg) and add component A (powder) whilst stirring.
– application by trowel – pour compound B (liquid) into a container and add compound A (powder) whilst stirring.
The material should be stirred until it forms a homogeneous mixture, free of lumps. Wait about 5 minutes and stir the material briefly once more.
In case of spray application, the mortar should be applied in single layer until the desired thickness is obtained. Depending on the type of aggregate, atmospheric conditions and the type of substrate for the mortar, you can add water without exceeding 2 liters for 32 kg set or 1 liter for 16 kg bucket. After spray application, the surface should be smoothed with a trowel, respecting open time. If applied manually, the first layer of Ceresit CR 166 should always be applied with a brush in generous quantities (preferably with a wide wall brush) into a moist but not wet substrate, while the next layers can be applied by a trowel or with a brush or roller. The second layer should be applied to matt wet and hardened first layer, after approx. 90-120 minutes under average conditions. Any subsequent layer – if required – should be applied in the same way, not earlier than after approx. 5-6 hours. For manual application, all subsequent layers should be applied diagonally.
After every roller application, the surface must be smoothed with a trowel (while fresh). The thickness of a single layer of Ceresit CR 166 should not exceed 2.0 mm. Directly on it, you can make flooring on a separate layer, plaster without gypsum or ceramic tiles laid with Ceresit CM tile adhesives or paint with dispersion base paint. In places of expansion joints, inner corners with troublesome coving with a 4 cm radius or joints between different material types, fix Ceresit CL152 sealing tape properly between the layers of Ceresit CR 166 slurry.
If the material is used to provide additional protection for reinforcement bars in a reinforced concrete structure, Ceresit CR 166 should also be applied outside the protected area with an additional margin of at least 0.5 m.
Tools and fresh stains should be washed with water.
When hardened, the slurry can only be removed mechanically. In case of horizontal insulation under ceilings, insulation of horizontal strip foundations and insulation on cantilevered balconies and terraces, it is recommended to embed a technical fleece with a maximum weight of 80 g/m^2 between Ceresit CR 166 layers. For cantilevered type of balconies or terraces, be extremely careful not to mechanically damage the previously installed insulation. For this purpose, protective pads should be used to protect the insulation and act as a sliding layer.

PLEASE NOTE:

Always follow all generally recognized rules of waterproofing technology as well as applicable national standards.
The mixed material must be used within 60 minutes. If the material becomes stiffer during this time, it is recommended to stir it occasionally. No extra water or liquid should be added.
In case of roller application, use a structure nylon type roller for thick materials' application (e.g. for skim coats).
Before the work is finished, it is essential to check if the required thickness of Ceresit CR 166 has been applied to the substrate – the minimum final thickness of the layers is 2 mm. Work should be carried out at an ambient and substrate temperature of between +5°C and +30°C and with air humidity below 80%. Timings given apply to standard conditions: temp 23°C and 50% relative air humidity. The applied slurry needs to be protected for at least 12 h to prevent it from drying out too quickly, from frost and from precipitation. Installation of covers to protect from direct sunlight, draughts, rain and frost is recommended. Do not cure the mortar by pouring or spraying water. Wait a minimum 12 hours from the application of Ceresit CR 166 before laying ceramic tiles, and 3 days before applying coats of paint. When covering the waterproofed surface with tiles, always use a tile adhesive of minimum quality C2. Even when fully dry, the coating must not be directly exposed to heavy mechanical loads.
The finished, bound coating is resistant to UV radiation and positive/negative water pressure up to 70 m, and its flexibility enables it to bridge cracks, even at low temperatures (tested in accordance to EN 14891 and EN 1504-2 standards).
New Ceresit CR 166 contains fibres that further strengthen the coating while at the same time reducing dusting of the material during mixing. When waterproofing walls and foundation areas indoors or outdoors – e.g. in the case of rear penetration of moisture – pre-treat the areas with Ceresit CO 81 Silicifying Fluid. Alternatively, the vapour permeable Ceresit CR 90 sealing coating can be used on non-deformable substrates and on damp foundation walls on the cellar side. On gypsum and anhydrite substrates, waterproof coatings should be made using Ceresit CL 50 or Ceresit CL 51. Surfaces with salt efflorescence should be covered with plaster with the addition of Ceresit CO 84. Ceresit CX 5 can be used to block local water seepage.
Compound A is corrosive, and the cement content gives the material alkaline properties.
Skin and eyes must therefore be protected. If contact occurs, rinse thoroughly with plenty of water. In case of contact with eyes, obtain medical advice immediately. Chromium VI content is less than 2 ppm over the shelf life of the product.
Keep out of reach of children. For professional use only.
Safety data sheet available at:
https://www.mysds.henkel.com

STORAGE

Up to 12 months from the production date, if stored on pallets in original and undamaged packages, in dry and cool conditions.
Compound B must be protected from frost!

PACKAGING

Set 32 kg: Paper bag with PE inlay – 24 kg (component A) and 8 l canister (component B).
Bucket 16 kg: 2 x 6 kg bags (component A) and 2 x 2l bottles (component B).

RECYCLING

Only the empty packaging is suitable for recycling. Disposal of vulcanized product residue is possible with other industrial wastes. Dispose of uncured product as hazardous waste. Waste code: component A: 170106, component B: 080119

TECHNICAL DATA

Base:	– compound A: a mixture of cement with selected mineral fillers, modifiers and fibres – compound B: dispersion of polymers in water
Density:	bulk density of comp. A: approx. 1.45 kg/dm^3 total density of comp. B: approx. 1.00 kg/dm^3 mixed product: approx. 1,60 kg/dm^3
Mixing ratio:	Set 32 kg: – for brush application or spraying: 24 kg of comp. A per 8 l of comp. B plus 2 l of water – for roller application: 24 kg of comp. A per 8 l of comp. B plus 1 l of water – for trowel application: 24 kg of comp. A per 8 l of comp. B Bucket 16 kg: – for brush application or spraying: 12 kg of comp. A per 4 l of comp. B plus 1 l of water – for roller application: 12 kg of comp. A per 4 l of comp. B plus 0,5 l of water – for trowel application: 12 kg of comp. A per 4 l of comp. B
Consumption:	– damp-proofing, waterproofing and sealing from pressurized water required thickness 2 mm: approx. 3,5 kg/m^2 – for application with inlay fleece thickness 2,5 mm: approx.4,3 kg/m^2
Application temp.:	from +5°C to +30°C
Application time:	up to 60 min.
Tiles fixing:	after min. 12 h
Painting:	after min. 3 days
Backfilling of the excavations:	after min. 3 days
Full load:	after 7 days
Data for set product:	for 2 mm dry coat thickness

Parameter	**Declared value**	**Test method**
	According to EN 1504-2	
Reaction to fire:	class E	EN 13501-1
CO_2 permeability:	Sd CO_2 > 50 m	EN 1062-6
Water vapour permeability:	class I Sd < 5 m	EN ISO 7783-1 EN ISO 7783-2
Capillary absorption and permeability to water:	W < 0,1 kg/m^2*h^{0,5}	EN 1062-3
Adhesion after thermal compatibility: after thunder shower cycling and after freeze-thaw cycling with de-icing salt immersion	≥ 0,8 MPa, fulfilled	EN 13687-1 EN 13687-2
Resistance to strong chemical aggression:	class II: • pool water, • seawater, • an aqueous solution containing ~ 3000 mg / l Mg2 + ions, • water with a pH of about 4.0, • 1% aqueous phenol solution, • 3% detergent solution, • an aqueous solution with the content of ~ 6000 mg / l SO42- ions, • an aqueous solution containing ~ 100 mg / l of NH4 + ions, • saturated solution of Mg2 + ions, • liquid manure.	EN 13529
Crack bridging ability (for the coat with fleece inlay)	class A2 ≥ 250µm (-20°C)	EN 1062-7
Adhesion strength by pull off test:	system with crack pull-off test: bridging ability or elastic systems with no traffic load ≥ 0,8 N/mm^2	EN 1542
Impact resistance	class II ≥ 10Nm, no cracks, scratches and delamination	EN ISO 6272-1
UV resistance	no bubbles, cracks and delamination after 1000h exposition to UV radiation and humidity	EN 1062-11
	According to EN 14891	
Initial tensile adhesion strength:	≥ 0,5 N/mm^2	A.6.2
Tensile adhesion strength after water contact:	≥ 0,5 N/mm^2	A.6.3
Tensile adhesion strength after heat ageing:	≥ 0,5 N/mm^2	A.6.5
Tensile adhesion strength after freeze-thaw cycles:	≥ 0,5 N/mm^2	A.6.6
Tensile adhesion strength after contact with lime water:	≥ 0,5 N/mm^2	A.6.9
Tensile adhesion strength after contact with chlorinated water:	≥ 0,5 N/mm^2	A.6.7
Waterproofing:	no penetration and ≤ 20 g weight gain	A.7
Crack bridging ability under standard conditions:	≥ 0,75 mm	A.8.2
Crack bridging ability at low temperature (- 5°C):	≥ 0,75 mm	A.8.3
Positive water pressure	≤ 0,7 MPa	A.7
Negative water pressure	≤ 0,7 MPa	ZUAT-15/ IV.13/2002

Parameter	Declared value	Test method
According to EN 1542:2000 in dry surface conditions		
Adhesion to the substrate made of ceramic bricks	+	
Adhesion to the substrate made of silicate bricks	+	
Adhesion to the substrate made of aerated concrete	+	
Adhesion to steel surface covered with anti-corrosion coat	+	
Adhesion to the fibre-cement board	+	
Adhesion to epoxy resin coating	+	
Adhesion to GB	+	
Adhesion to OSB	+	
Adhesion to ceramic tiles	+	
Initial adhesion after 12h	+	

Radon diffusion coefficient D:	$1{,}7.10^{-11} \pm 0{,}2.10^{-11}$ m²/s	ISO/TS11665-13 method A for 2,5 mm thickness
Parameters for spray application:	pressure: 180-230 bar nozzle nr: 461	
Emission:	very low emission, EC1Plus	EMICODE

The highest class EMICODE® EC1 has proven itself over many years as a standard for products that are very low in emissions. The materials awarded this label comply with very stringent health and environmental requirements. The premium class EMICODE®. EC1PLUS defines the limit of what is technically feasible today. Introduced in 2010, it sets even higher and stricter limit values than category EC1.

The product has PZH certificate for contact with drinking water number: B-BK-60210-1548/20 valid until 18.11.2023. Product complies with PN-EN 1504-2:2006, Product for concrete surface protection – coating application for structural and non-structural repairs in buildings and engineering work-ingress protection, moisture control, chemical resistance, increasing electrical resistivity and complies with PN-EN 14891, Liquid-applied water impermeable products for use beneath ceramic tiling bonded with adhesives – CM cementitious liquid-applied water impermeable products – O1 with improved crack bridging ability at low temperature (-5°C) – resistant to chlorinated water (P), has a Declaration of Performance no 01704, date of 22.12.2021. Product has test report Determination of Radon diffusion coefficient issued by Czech Technical University of Prague, no 124004/21, issued 18.01.2021

21 EN 14891:2012 1487 Cementitious liquid-applied water impermeable product	
Initial tensile adhesion strength	≥ 0,5 N/mm²
Tensile adhesion strength after water contact	≥ 0,5 N/mm²
Tensile adhesion strength after heat ageing	≥ 0,5 N/mm²
Tensile adhesion strength after freeze-thaw cycles	≥ 0,5 N/mm²
Tensile adhesion strength after contact with lime water	≥ 0,5 N/mm²
Waterproofing	No penetration ≤ 20g weight gain
Crack bridging ability under standard conditions	≥ 0,75 mm
CE Henkel Polska Operations Sp. z o.o. 02-672 Warszawa ul. Domaniewska 41 Ceresit CR 166 / Tekuta Lepenka 2K 01704	
16 EN 1504-2:2004 1488 Product for concrete surface protection. Layer application. Structural and non-structural repairs in buildings and engineering work. Ingress protection, moisture control, chemical resistance, increasing electrical resistivity.	
Reaction to fire	E,Efl Class
CO_2 permeability	SD > 50 m
Water vapour permeability μ	Class I; SD < 5 m
Capillary absorption and water permeability	W < 0,1 kg/m²*h^{0,5}
Adhesion after thermal compatibility	≥ 0,8 N/mm²
Adhesion strength during tear off	systems with the ability to scratches bridging or flexible without move burden: ≥ 0,8 [N/mm²]
Resistance to strong chemical aggression	Class II

Document available on the website: https://www.henkel-dop.com
The product has a Declaration of Performance No. 01704 date of 22.12.2021
Certificate of the Factory Production Control No. 1488-CPR-0658/Z issued by Instytut Techniki Budowlanej