

R 21 CE *Plus*

Self-Smoothing Epoxy Floor Topping (0.5 - 3.0mm)

DESCRIPTION

R 21 CE ^{Plus} is a high gloss, self-smoothing, fast cure, epoxy resin floor finish applied between 0.5 - 3.0 mm thickness. It combines outstanding wearing properties with chemical resistance and decorative finish. The added advantage of fast cure helps in quick refurbishing works and supports the remainder of the functions to continue ahead of schedule. Ideally suited in situations where a seamless, joint free finish is required and maximum cleanliness is essential.

USES

R 21 CE ^{Plus} is suitable for environments that can benefit from the tough chemically resistant system. Typical areas such as

- Laboratories and clean rooms
- Pharmaceutical manufacturing
- Food and beverage production
- Warehouses and storage areas
- General light industry

Features

- Seamless: easily cleanable to maintain high standards of hygiene
- Fast cure: allows foot traffic within 8 hours
- Does not support growth of bacteria and fungus
- Tough & Hard wearing: durable with low maintenance cost
- Resistant to a wide range of chemicals and liquids
- Self-smoothing: provides a flat high gloss finish
- Suitable for use as topping on existing epoxy screed
- Food grade: CFTRI approved; confirms to the specifications as per U.S.FDA 175.300
- Supplied in pre-measured packs for 0.5mm and 3mm thickness requirements
- Available in any standard RAL colours

PHYSICAL PROPERTIES

R 21 CE ^{Plus} @ 27 ± 1°C

Pot life	~30 minutes
Mixed Density	~1.61 g/cc
Foot Traffic	8 hours
Full cure	7 days
Bond strength ASTM C 882	> 1.5 N/mm ²
Compressive strength BS 6319 Part 3	> 60 N/mm ²
Flexural strength BS 6319 Part 3	≥ 35 N/mm ²
Tensile strength BS 6319 Part 2	> 20 N/mm ²

Shore D Hardness ASTM D 2240	> 80
Abrasion Resistance (ASTM D4060)	~ 0.03g loss/1000Cycles (1kg load using CS17 Wheels)
VOC Content	32 g/L

CHEMICAL RESISTANCE

ARDEX ENDURA "Chemical Resistance" chart.

Reagent	Concentration in %	R 21 CE ^{Plus}
Acetic acid	10	R
Acetic acid	50	N
Acetone	100	N
Ammonia	10	R
Ammonia	35	L
Beer	100	R
Citric acid	50	R
Formic acid	50	N
Hydrochloric acid	25	R
Hydrogen Peroxide	20vol	R
Kerosine	100	R
Lactic acid	25	R
Methylated Spirit	100	N
Milk	100	R
Nitric acid	30	R
Nitric acid	70	N
Oleic acid	100	R
Orange Juice	100	R
Petrol	100	R
Phosphoric acid	10	R
Red Wine	100	R
Salt	Saturated	R
Sodium hydroxide	50	R
Sodium hydrochloride	15	R
Sugar	Saturated	L
Sulphuric acid	10	R
Sulphuric acid	25	R
Sulphuric acid	75	R
Xylene	100	L

Resistant	R	28 Days +
Limited Resistance	L	up to 7 Days
Not Resistant	N	
Short Term Resistance	S	up to 1 Day

Note: For information on resistance to specific chemicals, please contact ARDEX ENDURA Technical Services Department.

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COVERAGE ESTIMATES

Pack Size	18.50 kg
Part A (Resin):	4.50 kgs
Part B (Hardener):	2.50 kgs
Part C (Filler):	11 kgs
Part D (pigment):	0.50 kgs

Thickness	0.5 mm	1.0 - 2.0mm	3.0 mm
Part A (Resin)	4.5 kg	4.5 kgs	4.5 kgs
Part B (Hardener)	2.5 kgs	2.5 kgs	2.5 kgs
Part C (Filler)	9 kgs	11 kgs	12 kgs
Part D (Pigment)	500 g	500 g	500 g
Coverage/ pack (approx.)	21 m ²	11.5 m ² @ 1mm & 5.75 m ² @ 2mm	4 m ²
Mixed Density	1.57 g/cc	1.61 g/cc	1.65 g/cc

APPLICATION INSTRUCTIONS

Installation of R 21 CE *Plus* should be carried out by an approved applicator of ARDEX ENDURA.

Surface Preparation

Note: The substrate should have a surface tensile strength of at least 1.5 N/mm².

It is essential that R 21 CE *Plus* is applied to sound, clean and dry surfaces to ensure maximum adhesion. The ideal substrate for application is a flat, lightly textured and clean surface. Surface irregularities must be ground down or filled out with ARDEX ENDURA range of repair materials.

Note: Any joints in the base e.g. movement joints, should be brought through to the finished surface and suitably sealed.

Concrete Floors

New concrete floors must be allowed to cure for at least 28 days and shall have an effective damp-proof membrane below to prevent rising dampness. The concrete substrate must be hard, sound, free of dust and other barrier materials such as mortar, curing agents, laitance, oil, grease, etc. that will inhibit adhesion to the substrate. Overwatered or otherwise weak concrete surfaces must also be suitably prepared down to sound, solid concrete by mechanical methods. Dust and other debris should be removed using vacuum equipment.

The ideal substrate for application is a flat, lightly textured, clean concrete surface. Surface irregularities must be ground down or filled out with ARDEX ENDURA range of repair materials. Concrete surfaces should be mechanically prepared, either by grinding, contained shot blasting or similar, and be vacuum cleaned.

Note: The surface moisture content should be less than 5% before commencement of the work. The coating should not be applied to floors that are known to have rising moisture. The product should not be applied in temperatures less than 10°C or where the ambient relative humidity is greater than 85%.

Epoxy Screeds/Underlay

The surface of the epoxy screed/underlay should be cleaned free of dust or any other contaminants that could inhibit the adhesion. Any surface irregularities must be ground down or filled out with EP 305 (epoxy repair compound).

Priming

Priming is not necessary when R 21 CE *Plus* is laid on epoxy screed/underlay. All concrete floors to be installed with R 21 CE *Plus* must first be primed with R 2 CE / R 3 E / R 9 CE (depending on substrate condition, refer to the individual data sheets). One or more coats of the primer may be required depending upon the condition and porosity of the concrete substrate. High porosity substrates may be revealed after preparation and will be evident by their rapid suction and absorption. Poorly primed surfaces may lead to blistering or pin holing in the cured resin. Allow for overnight drying

Mixing

The individual contents of R 21 CE *Plus* should be thoroughly stirred before being mixed together. Mix Part D with Part A and ensure smooth mixing. The entire contents should be poured in to a larger mixing vessel to incorporate Part B and Part C. The materials are mixed thoroughly with a spiral mixing paddle in a slow speed drill for 3 minutes until a consistent homogenous mix is achieved. One or more packs may be mixed simultaneously to ensure a quick rate of installation.

Note:

- Once mixed, the R 21 CE *Plus* will generate heat and lose working time if it is left in the mixing container or otherwise kept in bulk.

Application

The mixed R 21 CE *Plus* material should be applied to the prepared surface without delay using a trowel or depth set rake to achieve the desired thickness. As soon as the R 21 CE *Plus* has been laid and as work progresses, the surface should be gently rolled with a spiked roller in order to release any entrapped air from the mix and also to blend out any trowel marks. The work area should be protected during the installation process and during the initial curing time to ensure that no debris can contaminate the surface, as this will lead to unwanted blemishes in the hardened, cured surface.

CLEANING

R 21 CE *Plus* can be removed from tools and equipment by using a suitable thinner immediately after use. Any hardened material will need to be removed mechanically.

MAINTENANCE

Good housekeeping and regular cleaning is essential in order to maintain the performance of R 21 CE *Plus*. It is particularly important in areas that are subject to regular spillage of chemicals. Spillages should not be allowed to dry, which results in higher concentrations of the chemicals, causing early failure. Regular cleaning of the surface with a rotary scrubbing machine in conjunction with a water miscible cleaning agent or hot water washing at temperatures up to 50°C is recommended.

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STORAGE AND SHELF LIFE

R 21 CE *Plus* has a shelf life of 12 months if kept in a dry, clean store between 5°C and 30°C in the original unopened containers. The product should be protected from frost, away from direct sunlight and sources of heat.

PRECAUTIONS

During mixing and application the following precautions should be observed: Ensure adequate ventilation and avoid contact of the material with the eyes, nasal passages, mouth and unprotected skin. Avoid contact with the hands by wearing protective gloves and by using, if necessary, a suitable barrier cream. In case of contact with the eyes, rinse immediately with plenty of water and seek medical advice and after contact with the skin wash immediately with plenty of soap and water. Prolonged contact with the skin should be avoided, especially where the user has an allergic reaction to resin-based materials. Always wear gloves and eye/face protection as necessary. Observe personal hygiene, particularly washing the hands after work has been completed or at any interruption whilst work is in progress. Care should be taken when removing gloves to avoid contaminating the insides. In case of accidents seek medical advice.

DISPOSAL/SPILLAGE

Spillage of any of the product components should be absorbed onto sand or other inert materials and transferred to a suitable disposable vessel. Disposal of such spillage or empty packaging should be in accordance with local waste disposal authority regulations.

For further information please refer to the Material Safety Data Sheet.

CONDITIONS OF SALE

Sold subject to the Company's conditions of sale which are available on request.

NOTE

The information supplied in this datasheet is based upon extensive experience and is given in good faith in order to help you. Our Company policy is one of continuous Research and Development; we therefore reserve the right to update this information at any time without prior notice. We also guarantee the consistent high quality of our products; however as we have no control over site conditions or the execution of the work, we accept no liability for any loss or damage which may arise as a result thereof.

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