ROCK GARD 505

Crack bridging protective coating for

PRODUCT DESCRIPTION

ROCK GARD 505 is a one component, plasto-elastic coating based on UV-curing acrylic dispersion with excellent crack-bridging properties even at temperatures below 0°C.
ROCK GARD 505 complies with the requirements of EN 1504-2 as protective coating.

USES

ROCK GARD 505 is used for protection and enhancement of concrete structures (normal and lightweight concrete), especially exposed outdoor concrete surfaces with a risk of cracking
ROCK GARD 505 is used with concrete repair works as an elastic protective coating on smoothing mortar (refer to your product / system data sheet), fibre cement and overcoating of existing soundly adhering coatings
√ Suitable for protection against ingress (Principle 1, method 1.3 of EN 1504-9),
√ Suitable for moisture control (Principle 2, method 2.3 of EN 1504-9)
√ Suitable for increasing the resistivity (Principle 8, method 8.3 of EN 1504-9)

CHARACTERISTICS / ADVANTAGES

- Crack-bridging even at low temperatures (-20°C)
- High diffusion resistance against CO_2 reducing the rate of carbonation
- Water vapour permeable
- Very good resistance against weathering and ageing
- Environmentally friendly (solvent free)
- Reduced tendency to dirt pick up and contamination

TESTS

APPROVAL / STANDARDS

LPM Report A-33'882-2 dated July 09
The product is included in a compilation of tested products and systems as per OS 5a (OS DII) at the German Institute of Road Systems

PRODUCT DATA

Appearance / Colours

Thixotropic liquid available in almost every colour shade.

PACKAGING

13 litre plastic pail

STORAGE CONDITIONS / SHELF-LIFE

24 months from date of production if stored properly in undamaged and unopened original sealed packaging in cool and dry conditions. Protect from direct sunlight and frost.

Technical Data

CHEMICAL BASE

Acrylate dispersion

DENSITY

~ 1.39 kg/l (at +20°C)

SOLID VOLUME

~ 53.4%

SOLID CONTENT

~ 66.1%

LAYER THICKNESS

Minimum required dry film thickness to achieve the required characteristics (CO_2 equivalent air thickness of 50 m) ≈ 160 microns.
Minimum required dry film thickness to achieve full durability characteristics (CO_2 diffusion, adhesion after thermal cycling and crack bridging) ≈ 340 microns.

CARBON DIOXYDE DIFFUSION COEFFICIENT (MCO_2)

Dry film thickness	d = 160 µm
Equivalent air layer thickness	$S_{D,}CO_2$ = 51 m
Diffusion coefficient CO_2	$\mu CO_2 = 3{,}1 \times 10^5$
Requirements for protection	$S_{D,}CO_2 \geq 50$ m

WATER VAPOUR DIFFUSION COEFFICIENT (MH_2O)

Dry film thickness	d = 230 µm
Equivalent air layer thickness	$S_{D,}H_2O$ = 0.35 m
Diffusion coefficient H_2O	$\mu H_2O = 1{,}5 \times 10^3$
Requirements for breathability	$S_{D,}H_2O \leq 5$ m

VOC CONTENT

<40 g / litre

MECHANICAL / PHYSICAL PROPERTIES

Elongation at Tear	Elongation at break at room temperature (not exposed to weathering): 120% Elongation at break at -20°C: 70%
Crack-Bridging Ability	Class A1 (-20°C) EN 1062-7
Cross Cut	GT 0 EN ISO 2409
Capillary Absorption	w = 0,02 kg/(m²h$_{0.5}$) EN 1062-3
Pull-Off	2,9 (2,8) N/mm² EN 1542
Adhesion after Thermal Compatibility	For Outside Application with De-Icing Salt Influence: 2,9 (2,1) N/mm² EN 13687-part 1 & part 2
Artificial Weathering	Pass after 2000 hours EN 1062-11

SYSTEM INFORMATION

System Structure

System	Product (1)	Number of applications
Priming (2)	primer	1
Top coat(3)	ROCK GARD 505	2 – 3

Note(1) Please refer to the respective data sheet for additional information.

Note(2) For very difficult substrate (very dense or weak with tensile strength < 1 N/mm2) and at low temperature, use solvent containing primer.

Note(3) In case of an intensive yellow or red colour shade and/or a dark substrate, more than two coats might be required. A third coat is also required in order to achieve the required thickness for full durability (crack bridging, adhesion after thermal cycling, etc.)

APPLICATION DETAILS

CONSUMPTION

SUBSTRATE PREPARATION

Exposed concrete without existing coating:
The surface must be dry, sound and free from loose and friable particles. Suitable preparation methods are steam cleaning, high pressure water jetting or blastcleaning.

New concrete must be at least 28 days old.

If required, a levelling pore sealer shall be applied – refer to the respective product data sheet. For cement based products, allow a curing time of at least 4 days before coating

Exposed concrete with existing coating:
Existing coatings must be tested to confirm their adhesion to the substrate and their suitability - adhesion test average > 0.8 N/mm2 with no single value below 0.5 N/mm2.
For water based coating, use primer.
For solvent based coating, use primer.
In case of doubt, carry out adherence testing to determine which primer is most suitable – wait at least 2 weeks prior to conducting the adhesion test - an average value of 0.8 N/mm² is required with no single value below 0.5 N/mm².

APPLICATION CONDITIONS / LIMITATIONS

Substrate Temperature	+8°C min. / +35°C max.
Ambient Temperature	+8°C min. / +35°C max.
Relative Air Humidity	< 80%
Dew Point	Temperature must be at least 3°C above dew point.

APPLICATION INSTRUCTIONS

Mixing	The materials are supplied ready for use. Stir thoroughly prior to application.
Application Method / Tools	Apply a Primer evenly onto the substrate. For use on very dense substrates up to 10% Thinner C may be added to Primer. ROCK GARD 505 can be applied by brush, roller or airless spray.
Cleaning of Tools	Clean all tools and application equipment with clean water immediately after use. Hardened / cured material can only be removed mechanically. For Primer use Thinner.

WAITING TIME / OVERCOATING

Waiting time between coats at +20°C substrate temperature:

Previous coating	Waiting time	Next coating
ROCK GARD 505	8 hours min.	ROCK GARD 505

Note: When application is on existing coatings, the waiting time for both primers will increase by 100%.
Refresher coats of ROCK GARD 505 can be applied without priming if the existing coat has been thoroughly cleaned.

NOTES ON APPLICATION / LIMITATIONS

Do not apply when there is:
- Expected rain
- Relative humidity > 80%
- Temperature below +8°C and/or below dew point
- Concrete younger than 28 days

The system is resistant to aggressive atmospheric influences.

Curing Details
Curing Treatment

ROCK GARD 505 does not require any special curing but must be protected from rain for at least 4 hours at +20°C.

Applied Product ready for use

Full cure: ~ 7 days at +20°C

VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

HEALTH AND SAFETY INFORMATION

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

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