



Specialist Construction Supplies for Repair, Maintenance, Building & Infrastructure

Renderoc LA27 Data Sheet

Specification notes

Product: **Renderoc LA27**

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Renderoc LA27

Single component free-flowing low alkali, non-reactive micro-concrete

Uses

Renderoc LA27 is designed for the reinstatement of large structural sections of concrete and small areas where access is difficult. Renderoc LA27's highly fluid nature alleviates the need for compaction and vibration.

Advantages

- Non-reactive aggregates
- Low alkali content minimises risk of alkali-silica reaction
- Shrinkage compensated
- Excellent bond, no primer necessary
- Exceptional flow into characteristics
- Self-compacting
- Excellent protection against carbon dioxide and chlorides
- Pre-bagged to overcome site-batched variations
- Contains no chloride admixtures
- Suitable for electro chemical repairs

Standards compliance

Renderoc LA27 conforms to the UK Department of Transport Standard (BD27/86, Clause 4) 'Materials for the Repair of Concrete Highway Structures' and complies with the requirements of DTp Specification for Highway Works, Clauses 1702 and 1704, where a high strength flowing concrete with a low soluble alkali cement content and non-reactive aggregate is specified.

Description

Renderoc LA27 is supplied as a ready to use blend of dry powders only requiring the addition of clean water to produce a free-flowing, non-reactive micro-concrete. The hardened product exhibits excellent thermal compatibility and very low water permeability.

Design criteria

Renderoc LA27 is designed for large volume repairs typically in excess of 50 mm deep. The product can be applied in sections between 50 and 200 mm thick. Long narrow repairs should be avoided where possible and pours arranged to achieve a length : minimum thickness ratio, of not more than 20 : 1. Under conditions of high temperature and rapid drying or when very small sections are being constructed this ratio should be reduced. Longer

lengths than 200 mm may be achievable, dependent on steel configuration and other environmental considerations. Consult the local Fosroc office for further information.

Properties

The following results were obtained at a water : powder ratio of 0.132 and temperature of 20°C.

Test method	Typical result
Compressive strength (BS 1881 Pt 116: 1983 — restrained):	30 to 40 N/mm ² @ 3 days 45 to 55 N/mm ² @ 7 days 55 to 65 N/mm ² @ 28 days
Drying shrinkage (ASTM 157 modified):	< 400 microstrain @ 7 days < 600 microstrain @ 28 days
Flow properties (UK Department of Transport BD 27/86):	1000 mm within 30 seconds
Setting time (BS 5075 Pt 1: 1982) —	
Initial set:	4 hours
Final set:	6 hours
Resistivity (Midland Links Specification Clause 1770AR):	13,000 ohm cm @ 28 days
Alkali content:	The calculated equivalent sodium oxide is approximately 2.9 kg/m ³
Fresh wet density:	Approximately 2300 kg/m ³ dependent on actual consistency used
Chemical resistance:	Renderoc LA27 severely retards chemical attack in aggressive environments. The cured product resists the ingress of acidic gases, water-borne chloride and oxygen

Application instructions

Preparation

The unrestrained surface area of the repair must be kept to a minimum. Formwork should include drainage outlets for presoaking and provision for suitable access points for pumping or pouring. If used beneath a soffit, provision for air venting is necessary.

Saw cut or cut back the extremities of the repair locations to a depth of at least 10 mm and break out the complete repair area to a minimum depth of 50 mm up to the sawn edge.

The surface should be clean and free from contamination. Where breaking out is not required, roughen the surface and remove any laitance by light scabbling or grit-blasting.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a bright condition paying particular attention to the back of exposed steel bars. Grit-blasting is recommended for this process.

Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water immediately after grit-blasting.

Priming

Reinforcing steel priming: Priming of the steel reinforcement is not normally necessary unless it is to remain exposed in an environment likely to cause corrosion after preparation. When required apply one full coat of Nitoprime Zincrich and allow to dry before continuing. If any doubt exists about having achieved an unbroken coating, a second application should be made and, again, allowed to dry before continuing. Where the risk of incipient anode formation is a potential e.g. chloride contaminated concrete, extra protection to the repair area can be provided by Renderoc Galvashield XP, an embedded zinc anode.

Substrate priming: Several hours prior to placing, the prepared concrete substrates should be saturated by filling the prepared formwork with clean water. Immediately prior to the application of Renderoc LA55, any excess water should be removed.

Mixing

Care should be taken to ensure that Renderoc LA27 is thoroughly mixed. A forced-action mixer is essential. Mix in a suitably sized drum using an approved spiral paddle in a slow speed (400/500 rpm) heavy-duty drill. Free-fall mixers must not be used. Mixing of part bags should never be attempted.

Measure 3.3 litres of drinking quality water, pour three-quarters into the mixer with the machine in operation and add one full bag of Renderoc LA27, mix for 1 minute. Add remaining water and mix for a further 2 to 3 minutes until a smooth even consistency is obtained. Note that the powder must always be added to water.

When using a drill and paddle, the complete 3.3 litres of water should be placed in the mixing drum. With the paddle rotating, add one full 25 kg bag of Renderoc LA27 and mix

for 2 to 3 minutes until a smooth even consistency is obtained.

It is recommended that the mixed product be passed through a suitable coarse metal screen prior to application to highlight any unmixed material.

Material should be placed within 30 minutes of mixing.

Mixing warning

Renderoc LA27 may exhibit satisfactory handling characteristics even though inadequately mixed. This will result in a significantly lower level of performance or possible failure. It is essential that mixing instructions are strictly adhered to with particular emphasis on the quantity of water used and the time of the mixing operation.

High and low temperature working

At ambient temperatures above 35°C, the material should be stored in the shade and iced water used for mixing.

In cold conditions down to 5°C, the use of warm mixing water (up to 30°C) is advisable to accelerate strength development. The material should not be applied at temperatures lower than 5°C.

Curing

Formwork should be left in place until the compressive strength of Renderoc LA27 is 10 N/mm² or as specified by the supervising officer.

Immediately after striking the formwork, all exposed surfaces of the concrete should be cured using Concure WB*. In fast drying conditions, supplementary curing with polythene sheeting taped down at the edges must be used. In cold conditions the finished repair must be protected from freezing.

Overcoating with protective decorative finishes

Remove all traces of release oils and curing membranes by light grit or sand blasting prior to the application of Dekguard products.

Cleaning

Renderoc LA27 should be removed from all equipment with clean water immediately after use. Cured material can only be removed mechanically.

Limitations

Renderoc LA27 should not be used at temperatures below 5°C and falling. Do not mix part bags. Do not expose to moving water during application. If in doubt, consult the local Fosroc office.

Estimating

Renderoc LA27 is supplied in 25 kg bags each yielding approximately 12 litres. Note: coverage figures are theoretical and may be reduced depending on wastage factors and the nature of the substrate.

Storage

Storage conditions

Store in dry conditions in the original unopened bag.

Shelf life

12 months if stored as above. If stored at high temperatures and/or high humidity the shelf life may be reduced.

Precautions

Health and safety

Renderoc LA27 contains cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. Avoid inhalation of dust and contact with the skin and eyes. Wear suitable protective clothing, gloves, eye protection and respiratory protective equipment. In case of contact with skin and eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately — **do not** induce vomiting.

Fire

Renderoc LA27, is non-flammable.

* See separate data sheet.



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