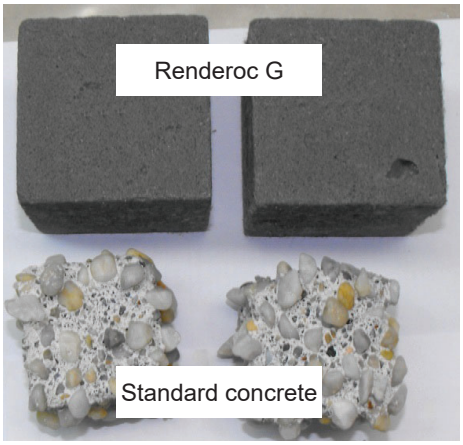
Fosroc®
Renderoc® G

constructive solutions

An acid resistant repair mortar and lining system for use in highly corrosive environments



20% Sulphuric Acid @ 28 days Immersion

Uses

Renderoc G is a versatile material that can be used for long term protection in a number of different aggressive environments which include:

- The repair and relining of potable water structures subject to corrosive or soft water attack
- The repair and relining of sewer assets subject to corrosive attack
- Repair of acid bunds
- Repair of concrete within the sugar, dairy and wine processing industries

Advantages

- Excellent long term chemical resistance
- High compressive, flexural and tensile strength even when immersed in long term acid conditions
- Early return to service for assets
- Formulation based on waste by-products, providing a sustainable material reducing overall carbon footprint
- Can be applied by the wet spray process for fast, exceptionally high build repairs with enhanced characteristics
- Pre-bagged to overcome site-batched variations - only the site-addition of clean water required
- Suitable for use in contact with drinking water
- RCS (Respirable Crystalline Silica) Hazard Free

Description

Renderoc G is a new generation geopolymer repair mortar that offers outstanding resistance to the attack of aggressive organic and inorganic acids and chemicals. Renderoc G is a geopolymer mortar based on waste materials such as fumed silica, blast furnace slag and fly ash.

The activation of these materials creates a very strong, chemical resistant material that can be used for structural relining and repair of tunnels and trunk line sewers where the H_2S levels are under 100ppm. For levels above this consult Fosroc for further advice.

Renderoc G is not hazardous in accordance with Australian Inventory of Industrial Chemicals. Contains <0.1% RCS.

Standards Compliance

Renderoc G complies to AS 4020:2018 at an exposure level of 15,000mm² per litre; AWQC Report 310871.

Copies of the report are available on the Fosroc website.

Properties

The following results were obtained at a water:powder ratio of 0.15 and temperature of 20°C unless otherwise stated. All samples wet cured unless otherwise stated.

Test Method	Test Result
Compressive Strength (AS 1478.2 - 2005):	4 MPa @ 1 day
	20 MPa @ 7 days
	35 MPa @ 28 days
	40 MPa @ 56 days
	26 MPa @ 56 days cure and 8 weeks in 20% (w/w) sulphuric acid
Flexural Strength (AS 1012.11 - 2000):	3.7 MPa @ 7 days
	5.2 MPa @ 28 days
	5.3 MPa @ 56 days
	4.2 MPa @ 28 days cure and 8 weeks in 20% (w/w) sulphuric acid
Indirect Tensile Strength (AS 1012.10 - 2000):	3.1 MPa @ 7 days
	4.0 MPa @ 28 days
	4.2 MPa @ 56 days
	3.8 MPa @ 28 days cure and 8 weeks in 20% (w/w) sulphuric acid
Fresh Wet Density:	2200 Kg/m³

Application Instructions

Preparation

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae. Where breaking out is not required, roughen the surface and remove any laitance by light scabbling or grit-blasting. Where possible, saw cut or cut back the extremities of the repair locations to a depth of 10mm to avoid feather edging and to provide a square edge.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits 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 to remove corrosion products from pits and imperfections within its surface.

Reinforcement Protection

Where a reinforcement coating is required as an active corrosion protection barrier, apply one full coat of Nitoprime Zincrich and allow to dry before continuing.

Substrate Priming

If hand/trowel applied or spray applying, the concrete surface should be saturated for 2-3 hours prior to application and then any excess water removed from the surface to provide a surface saturated dry (SSD) surface immediately prior to the application of Renderoc G.

Mixing

Care should be taken to ensure that Renderoc G is thoroughly mixed. A forced-action mixer is essential. Mixing at a slow speed (400/500 rpm) in a suitably sized drum using appropriate equipment such the Ransom 140 x 600 M14 Helical mixing paddle (product code: N4020892-UNIT) fitted to a heavy-duty 1600W mixer, such as Ransom 1602 E (product code: NP7EV160-UNIT) or equivalent is acceptable.

Free-fall mixers must not be used. Mixing of part bags should never be attempted.

For normal applications, place **3.0 – 3.2** litres of drinking quality water into the mixer and, with the machine in operation, add 1 full 20kg bag of Renderoc G and mix for 3 minutes until fully homogeneous. Note that powder must always be added to water. Dependent on the ambient temperature and the desired consistency, the amount of water required may vary slightly but should not exceed **3.2 litres / 20kg** bag of Renderoc G.

Application

Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will affect mortar compaction, build and bond.

Apply the mixed Renderoc G to the prepared substrate by gloved hand or trowel. Thoroughly compact the mortar on to the primed substrate and around the exposed reinforcement. Renderoc G can be applied up to 80mm thickness in vertical and 50mm in overhead sections in a single application without the use of formwork.

Thicker sections should be built up in layers, but are sometimes possible in a single application depending on the actual configuration of the repair area and the volume of exposed reinforcing steel.

If sagging occurs during application to vertical surfaces, the Renderoc G should be completely removed and reapplied at a reduced thickness on to the correctly reprimed substrate.

Note: the minimum applied thickness of Renderoc G is 10mm.

Build-up

Additional build-up can be achieved by application of multiple layers. The final thickness is dependent on the material consistency and substrate profile.

The surface of the intermediate layers should be scratch-keyed and applied as soon as initial set has been reached.

Spray application

Renderoc G can be quickly and efficiently applied by the wet spray technique. In circumstances where large areas of repair are required, the rapid placement and higher build attainable by this method offer economic advantages over hand-trowelling. The resultant repair also offers a generally more dense compound with enhanced mortar/substrate bond characteristics. For further details on the wet spray technique, including selection of spraying machines and nozzles, consult the document “Wet Spraying Renderoc mortars” or contact Fosroc.

Finishing

Renderoc G is finished by striking off with a straight edge and closing with a steel trowel. Wooden or plastic floats, or damp sponges may be used to achieve desired surface texture. The completed surface should not be overworked.

Allow the applied Renderoc G to stiffen before attempting to finish off - this will minimise slumping. After spray application, the mortar may need to be ‘cut back’ to the required profile using a steel trowel and then finished with damp sponges as described above.

High temperature working

At ambient temperatures above 35°C, the material should not be used as this will cause premature setting.

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Curing

In common with all cementitious materials, Renderoc G must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR or Concure A99, sprayed on to the surface of the finished Renderoc G in a continuous film, is recommended. Large areas should be cured as trowelling progresses (0.5 m² at a time) without waiting for completion of the entire area. 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 Dulux Flexituff PU-2 Hybrid Polyurethane Lining

Renderoc G must be cured with polythene sheeting for a minimum of 28 days. Once the curing period is completed the polythene sheeting should be removed and the surface of the Renderoc G should be mechanically prepared to give a surface appearance between CSP 2 and CSP 3.

Dulux Flexituff PU-2 can then be applied in accordance with the Dulux Flexituff PU-2 TDS.

Cleaning

Renderoc G should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Equipment used with Nitoprime Zincrich should be cleaned with Fosroc Solvent 10.

Limitations

Renderoc G should not be used when the temperature is below 5°C and falling. Do not mix part bags. The product should not be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour. If any doubts arise concerning temperature or substrate conditions, contact Fosroc.

Supply

Renderoc G 20kg**:**	FC302025-20KG
Nitoprime Zincrich 1 litre:	FC322100-1L
Fosroc Solvent 10 4 litre:	FC600800-4L

Coverage and yield

Renderoc G:	Approx 10.2 litres / 20kg bag
Nitoprime Zincrich:	8m² / litre

Notes: the coverage figures for liquid products are theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.

Storage

Renderoc G has a shelf life of 36 months from date of manufacture if kept in the original, unopened bags. Do not use if there are lumps in the product, or a loss of workability (requiring more water to be added) is experienced.

If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Important notice

A Safety Data Sheet (SDS) is available from the Fosroc website. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

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Parchem Construction Supplies Pty Ltd
1956 Dandenong Rd Clayton VIV 3168
Ph: 1800 812 864
www.fosroc.com.au ABN 80 069 961 968

Distributed in New Zealand by: Concrete Plus Ltd
150 Hutt Park Road Gracefield Ph: 0800 657 156
www.fosroc.co.nz NZBN 9429033691282