VINCI TECHNOLOGY CENTRE

PROJECT

Nuclear Transport Solutions,
Barrow Marine Terminal

METHOD STATEMENT FOR:

Replacement of Concrete Infill to Dock Crane Rail Troughs

DOCUMENT NUMBER TR0233-3WS4-RAMS 001			
DIVISION	**DEPARTMENT**	**TYPE**	**NUMBER**
VINCI Technology Centre	Building Pathology	RAMS	001

REVISION	DATE	PREPARED BY	CHECKED BY
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DISTRIBUTION:

Paul Dawson (Nuclear Transport Solutions)
Project File (VINCI Technology Centre)

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APPENDICES

Method Statement Briefing Register

I have hereby read and understood the Method Statement for the works.

Name	Date	Comments	Signed

Site Lead _____ Date _____

1 INTRODUCTION

In 2022, VINCI Technology Centre UK Limited (VINCI Technology Centre) undertook a concrete slab condition survey of the Barrow Marine Terminal at Cavendish Dock Road, Barrow-in-Furness for Nuclear Transport Solutions (NTS). From the resultant report (N950-22-18247Rev00), the recommendation from the survey was to replace the concrete infill to the two crane rail troughs. To facilitate the recommendation, NTS commissioned VINCI Technology Centre to prepare a Method Statement / Scope of Works for external contractors to follow.

This method statement (MS) details the works involved to undertake this operation and types of materials to be used. This document will highlight and communicate risks and control measures to be used during this operation in the risk assessment (RA) process. This is enclosed in Appendix A as per the Management of Health and Safety at Work Regulations 1999.

To carry out this investigation, the following scope of works is proposed:

- The existing drains of the Dock Crane Rail Trough to be unblocked.
- The existing Dock Crane Rail Trough Infill concrete to be removed.
- Treatment of the Dock Crane Rail with primer prior to placement of replacement Dock Crane Rail Trough concrete.
- Preparation of the Dock Crane Rail Pile-Cap Slab concrete to allow a strong bond to the replacement Dock Crane Rail Trough infill concrete.
- The Crane Rail Trough to be partially infilled with repair concrete to prevent corrosion to the foot of the Crane rail and / or Crane Rail fasteners.

Should anything change between the writing of this MS and the undertaking of the works, a point of work RA or “job talk” will be undertaken to assess the risk posed by the changes and the conditions on site on the day. Should the RA and control measures be deemed acceptable, hand amendments to the site copy of this MS will be made and copy retained, this to be agreed with the client and countersigned.

2 REFERENCES

Throughout this method statement the references and descriptions listed in Table 1 will be utilised.

Table 1: References

Document	Title
BS EN 1504-3	Products and systems for the protection and repair of concrete structures. Definitions, requirements, quality control and evaluation of conformity. Part 3 – Structural and non-structural repair.
BS EN 1504-9	Products and systems for the protection and repair of concrete structures. Definitions, requirements, quality control and evaluation of conformity. Part 9 - General principles for use of products and systems.
BS EN 1504-10	Products and systems for the protection and repair of concrete structures. Definitions, requirements, quality control and evaluation of conformity. Part 10 – Site application of products and systems and quality control of the works.
Concrete Society TR38	Patch repair of reinforced concrete – subject to reinforcement corrosion.
Concrete Repair Association Advice Note No.1	The route to a successful concrete repair.

3 MATERIALS

The typical materials which could be used for undertaking the replacement of concrete infill to crane rail troughs required for these works are listed in Table 2: The MSDS for each of the products listed below can be found in Appendix B.

Other manufacturers produce similar systems of repair and should be considered for this application. The products below have been selected as a typical example of the repair produces available.

Table 2: Materials to be used for replacement of concrete infill to the two crane rail troughs.

Manufacturer	Product
Fosroc International Ltd	Nitoprime Zincrich Plus – Single component zinc primer for use with Fosroc Renderoc repair system.
Fosroc International Ltd	Renderoc GP – General purpose medium density concrete reinstatement mortar conforming to requirements of BS EN 1504-3, Class R3.
Fosroc International Ltd	Renderoc HB – High performance lightweight concrete reinstatement mortar conforming to requirements of BS EN 1504-3, Class R2.
Saint-Gobain Weber	webercem grout eco – Premixed non-shrink cementitious grout conforming to requirements of BS EN 1504-3.
Saint-Gobain Weber	webercem advanced repair concrete – Pre-blended cementitious repair concrete conforming to requirements of BS EN 1504-3, Class R4.

4 LABOUR

The works to be undertaken by trained, competent and authorised (TCA) personnel. The manufacturers listed in Table 2 offer TCA personnel as a cost extra to the purchase of materials.

However, if the following methodologies, based upon the information contained in the references in Table 1, are utilised along with following the manufactures instructions; similar quality finishes may be created.

5 METHODOLOGY OF CONCRETE INFILL REPLACEMENT

5.1 General

BS EN 1504-10 provides general guidance for site application and quality control including preparation of substrate, application and quality control of selected systems. Recommended repair methodologies are detailed below by defect type and detail the Repair Principle and relevant repair methods as detailed in BS EN 1504-9. This document is not exhaustive but, for brevity and clarity, contains guidance on the most appropriate repair methodologies for the various defects observed during the Barrow Marine Terminal Crane Rail Trough inspection. It is recommended that all relevant information from the manufacturer of any repair materials used be incorporated into the procedures prior to the initiation of the repair work. It is also recommended that the contractor chosen for the works be engaged throughout the process to allow a clear, agreed material selection and methodology of installation.

It is stressed that the details contained within the following methodologies are generic and that the manufacturer's instructions for any proprietary repair material selected will supersede this document and should be followed accurately.

5.2 Existing Dock Crane Rail Trough Drainage

All existing drainage channels from the Dock Crane Rail trough are to be retained. Therefore, during the replacement of Dock Crane Rail Trough Infill concrete works ensure that the original drainage profile is created to allow removal of ponded water from the infilled Dock Crane Rail trough.

5.3 Removal of Existing Dock Crane Rail Trough Infill Concrete, Based on BS EN 1504-3, Principal 3 Method 3.2

When the Dock Crane Rail Trough Infill concrete is removed from the Dock Crane-Rail Pile-Cap Slab (Substrate) concrete, the following factors should be taken into account during the removal:

- The extent of the removal shall be appropriate to the principle and method selected.
- Removal will be constrained to the existing Dock Crane Rail Trough Infill concrete only.
- Removal shall not reduce structural integrity of the substrate concrete – temporary support may be required.
- Need for compaction for the repair material.
- Need for bond to the substrate.

After removal of the existing Dock Crane Rail Trough Infill concrete from the substrate concrete, metal debris such as tying wire fragments and nails should be removed from the Dock Crane Rail Trough where possible.

Selective concrete removal is normally achieved by:

- Mechanical, percussion means.
- Water blasting (hydro demolition) with high pressure (up to 110MPa).

If corrosion is present on and around the Dock Crane Rail and fasteners, removal of substrate concrete may be needed to ensure bonding of replacement concrete to substrate concrete. Any chloride contaminated substrate concrete should be removed on all sides of the Dock Crane Rail and fasteners for a minimum of 20mm.

5.4 Preparation of In-situ Dock Crane Rail

The corrosion should be removed from the Dock Crane Rail and fasteners in a method that meets the following requirements.

- Rust, scale, mortar, concrete, dust and other loose material shall be removed.
- The whole of the Dock Crane Rail and fasteners shall be uniformly cleaned, except where structural alterations prevent it.
- Dock Crane Rail and fasteners shall be cleaned without causing damage to it or damage to/contamination of the adjacent concrete or environment.
- Chloride contaminants can be cleaned by water jets not exceeding a pressure of 18MPa.

Remove any contaminants by further cleaning with either solvents or steam cleaning.

Apply a proprietary protective coating to the exposed Dock Crane Rail and fasteners to the manufacturer’s instructions.

Unless the repair is to be carried out immediately after the preparation, the prepared substrate should be protected from further contamination.

5.5 Preparation of In-situ Dock Crane-Rail Pile-Cap Slab (Substrate) Concrete

Where practicable, the exposed surface of the substrate concrete should be prepared with appropriate mechanical or percussion techniques to provide a suitable surface. The surface of the exposed substrate concrete should have:

- A minimum angle of 90 degrees (to prevent undercutting).
- A maximum angle of 135 degrees (to reduce the possibility of a weak, feather edge to the repair).

If necessary, roughen the surface of the substrate concrete to provide a textured surface with good bonding for the replacement concrete. The surface can be roughened by either:

- Mechanical, percussion or abrasion techniques.
- Grit and sand blasting.
- Water blasting (up to 60MPa).

Ensure that the substrate concrete is clean and free from dust and loose material, surface contamination and materials that may reduce bond or prevent suction or wetting by the replacement concrete (i.e., grease or oil). Cleaning of the substrate can be achieved by using either:

- Water blasting – at ~18MPa or up to 60MPa if low volume of water is required.
- Clean compressed air – the compressed air must pass through a filtration system to remove residual traces of oil to minimise the potential for additional contamination of the surface.
- Vacuum cleaning – small hand-held vacuum cleaners with an assortment of nozzles.

5.6 Reinstatement of Dock Crane Rail Trough Infill (Replacement) Concrete

It is recommended that a bonding primer be applied to the exposed substrate concrete prior to the application of the replacement concrete. The bonding coat can either be a cement slurry mixture or a proprietary bonding material. Where cementitious repair materials are used in conjunction with a bonding primer, ensure that the bonding coat has not set prior to the application of the replacement concrete.

Where cementitious replacement materials are used with no bonding primer, ensure that the substrate is pre-wetted. The water used for wetting the substrate shall be of similar purity to the mixing water and shall conform to the purity requirements as detailed in BS EN 206-1. The substrate shall be surface dry prior to application of the replacement material.

Where polymeric replacement materials are used, check with manufacturer's instructions regarding the requirement for a bonding primer.

The replacement material shall be worked into the prepared substrate (and around the Dock Crane Rail and fasteners) ensuring that no entrapped air pockets are present.

Strike the replacement concrete at such an angle so as to infill the Dock Crane Rail trough from covering the base of the rail / rail fastener to being flush with the substrate concrete using a builder's float or similar. See Drawing 5716/1012 provided by NTS in Appendix C for detail of replacement concrete placement. This is to Ensure that the repair concrete does not infringe on the Dock Crane wheels along Dock Crane Rails.

If replacement concrete is >25mm in depth it may be necessary to build up the repair in layers to prevent sagging of the repair material. If the replacement is to be built up in layers introduce a mechanical key to the surface of the layers to provide a good bond for subsequent layers.

The replacement concrete should be allowed to cure sufficiently taking into account the nature of the products and systems used, the thickness of the repair and environmental conditions.

The replacement concrete should be protected from salt spray until the repair concrete has cured adequately.

6 WORK AREA ACCESS

All areas for replacement are situated on the Dock Crane-Rail Pile-Cap Slab (Substrate) concrete at ground level. The repair Contractor will assist NTS in ensuring work areas are barriered during replacement works.

Access to the work areas will be the responsibility of NTS. The works will be undertaken at ground level.

7 PPE

All personnel attending site shall be provided with statutory task specific PPE. Details of the task specific PPE should be detailed in the risk assessment.

Standard 5-point PPE is detailed below:

- Safety boots (steel toe and midsole)
- Safety helmet
- Hi-Viz top, (vest or coat)
- Cut 5 safety / cementitious material resistant plastic gloves
- Light-eye protection.

8 RISK ASSESSMENT

The risk assessment for these works is presented in Appendix A.

9 MSDS And COSHH DOCUMENTS

MSDS and COSHH documents for all the substances listed in Table 2 are included in Appendix B.

10 LIGHTING

The work will be completed during daylight hours, and it is not anticipated that any artificial lighting will be required.

11 FIRE AND EMERGENCY

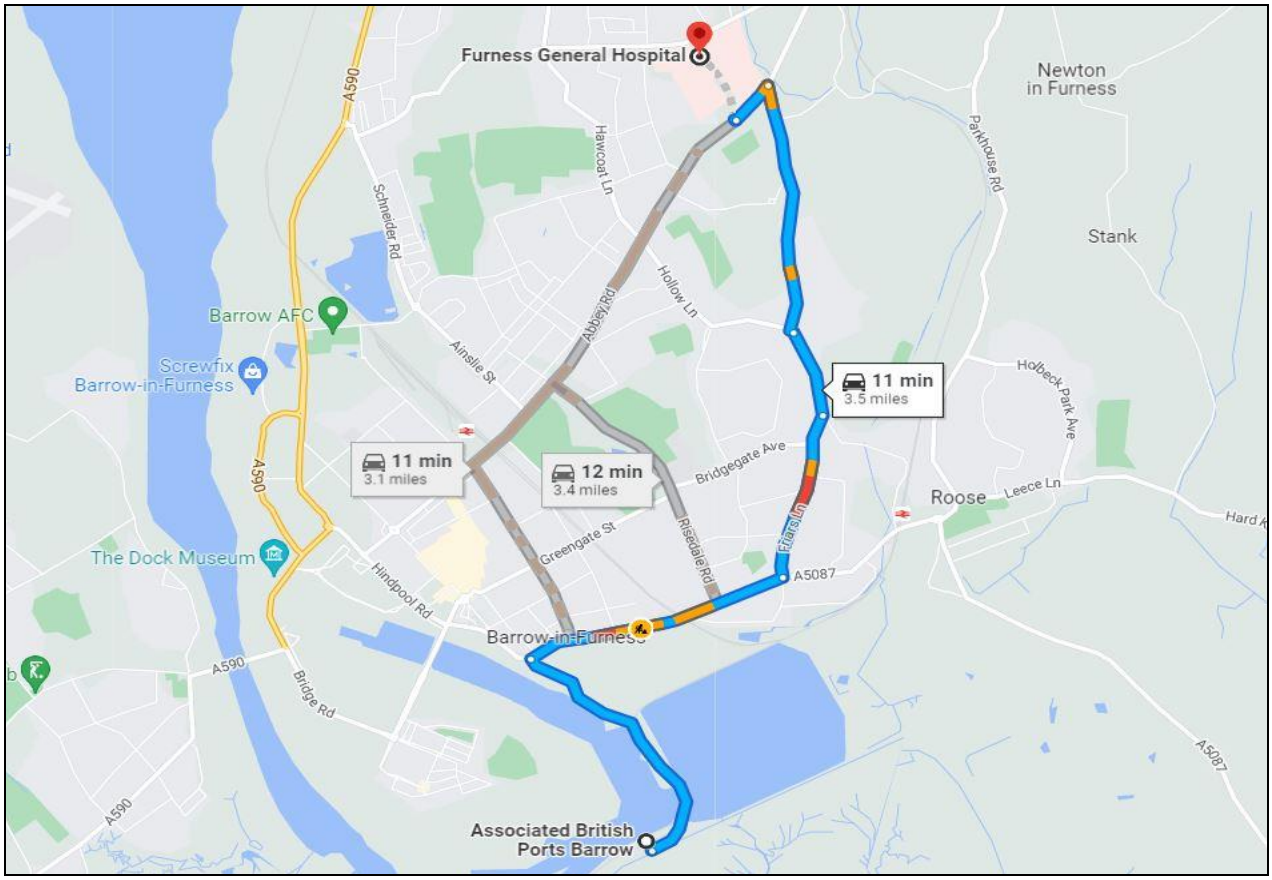
In the event of the fire or evacuation alarm sounding during works, all work will immediately cease. Items will not be placed in a fire evacuation route at any time. The site team will evacuate the area.

12 EMERGENCY PROCEDURES

On-site emergency procedures will be in accordance with those implemented by NTS.

Hospitals which are closest to site have been shown below on a map with adequate information when needed. They are located on the map with a red pin:

Hospital Address: Furness General Hospital - Dalton Ln, Barrow-in-Furness LA14 4LF



13 CLIENT SITE INDUCTION

All personnel are to undertake an NTS on-site brief before commencing on the first day of site attendance.

14 BILL OF QUANTITIES

As a result of the investigation a bill of quantities (BOQ) has been prepared and detailed within this document.

The concrete repairs detailed in this BOQ are generally based upon the Concrete Repair Association (CRA) document “Standard Method of Measurement for Concrete Repair” – Second Edition, 1997.

The BOQ has been compiled based on the following details and assumptions:

- During measurement, dimensions taken were rounded up to the nearest half metre.
- Where the unit of billing is linear metre, quantities have been recorded to the nearest whole unit.
- When carrying out elevation repairs, it is assumed that the concrete will be repaired to the depth of the reinforcement +25mm.
- The quantities contained in this document are based on the information issued as part of report N950-22-18247Rev01.
- Any removal of substrate concrete is based upon the maximum reinforcement depth recorded on site.
- The maximum depth and width stated in the CRA document have been assumed for all the replacement.

The full Bill of Quantities is located in Appendix D.

Appendix A:

Task Specific Risk Assessment

Appendices

THE WAY WE WORK

SITE MANAGEMENT RISK ASSESSMENT

TECHNOLOGY CENTRE

Prepared By:	David Thompson			**Position:**	Senior Engineer			**Date:**	09-Jan-23
Approved By:	Michael Thorne			**Position:**	Principal Engineer			**Date:**	13-Jan-23
Effective From (Date):	TBA								

Health and Safety

Likelihood:	Severity:
1 - Unlikely	1 - Minor injury - First aid on siteMinor incident - No disruption
2 - May happen	2 - Minor Injury - First aid off site or LTIMinor indicent - Minimal disruption
3 - Likely	3 - Over 7 day injury, occ. illnessIncident - damage to 3rd party property
4 - Very likely	4 - Major Injury or Incident - Significant disruption to site or 3rd parties
5 - Highly likely	5 - Fatality or Incident which results in the project being stopped or major damage to 3rd party property

Risk = Likelihood x Severity

Low
Medium
High

Likelihood						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
				Severity		

Add the likelihood and severity into the relavant columns and the risk level populates automatically

Hazard	Persons at Risk	Likelihood	Severity	Risk level	Control Measure/ Precaution	Likelihood	Severity	Level of Residual Risk	Person Who Will Control the Risk (Name)
Use of hand tools - Damage to hands, arms, face, eyes and other body parts	Dock Rail Concrete Replacement Site Team	3	4	12	Before Work: Brief Site team of hazards and inspect before use. During Work: Eye protection to be worn where there is a risk of flying debris. If significant amounts of dust are produced, dust masks to be worn. General purpose gloves to be worn to protect hands	1	4	4	Dock Rail Concrete Replacement Site Team Lead
Manual Handling - Muscular-skeletal injury, long-term health problems, permanent disability	Dock Rail Concrete Replacement Site Team	3	4	12	Before Work: Brief Site Team of Manual Handling risks. During Work: Use two persons to lift loads in excess of 25kg.	1	4	4	Dock Rail Concrete Replacement Site Team Lead
Housekeeping - Slips, trips and falls	Dock Rail Concrete Replacement Site Team	4	3	12	Before Work: Brief Site Team on good housekeeping. During Work: No tools/materials to be left unattended. Tools and materials to be stored appropriately when not in use. After Work: Area to be tidied and swept clean on completion of works.	1	3	3	Dock Rail Concrete Replacement Site Team Lead

Hazard	Persons at Risk	Likelihood	Severity	Risk level	Control Measure/ Precaution	Likelihood	Severity	Level of Residual Risk	Person Who Will Control the Risk (Name)
Use of electric tools - Electric shock	Dock Rail Concrete Replacement Site Team	4	5	20	Before Work: Only 110V tools to be used. Tools to be shown to have beeen PAT tested. Site team to check tools for signs of wear or damage. During Work: Damaged/worn tools to be taken out of service and the supervisor notified.	1	5	5	Dock Rail Concrete Replacement Site Team Lead
Use of electrical extension cables - Electric shock, trips and falls	Dock Rail Concrete Replacement Site Team	4	5	20	Before Work: Only 110V power to be used. Check all cables for damage. During Work: Cables should be secured above head height (>2m) where practicable. Where cables run along the floor, tape down or protect using cable covers where practicable.	1	5	5	Dock Rail Concrete Replacement Site Team Lead
Use of electric vibrating tools - Physical injury / disability	Dock Rail Concrete Replacement Site Team	3	4	12	Before Work: Modern, PAT tested, well maintained tools to be used. During Work: Exposure to vibration to be limited according to HSE guidelines. Correct PPE to be used at all times.	1	4	4	Dock Rail Concrete Replacement Site Team Lead
Working with cementitious products - Inhalation of cement dust, cement burns, eye injury, dermatitis.	Dock Rail Concrete Replacement Site Team	3	5	15	Before Work: Site team to be briefed on risks. During Work: Waterproof gloves to be worn when handling/using cement products. Dust masks to be worn where there is a significant risk of dust inhalation. Eye protection to be worn if there is a risk of splashes to eyes.	1	5	5	Dock Rail Concrete Replacement Site Team Lead
Biological Hazards - Exposure to Rats and Pigeon Liquid and solid waste	Dock Rail Concrete Replacement Site Team	3	3	9	Before work: Cover all exposed cuts and abrasions with a waterproof plaster. All members of site team to carry Leptospirosis info cards. During work: Wear appropriate PPE and avoid rubbing your nose, mouth or eyes with unwashed hands or gloves during work. After work: wash hands thouroughly before handling food and drink.	2	2	4	Dock Rail Concrete Replacement Site Team Lead

Appendix B:

MSDS and COSHH Assessment Data

Appendices

Fosroc® Nitoprime Zincrich Plus

constructive solutions

Single component zinc primer for use with Renderoc repair system

Uses

Nitoprime Zincrich Plus is the recommended anti-corrosion primer for exposed steel reinforcement for use with Fosroc concrete repair mortars.

It is fully compatible with all Renderoc mortars and fluid micro-concretes.

Advantages

- 'Active' zinc-rich system combats corrosion by electro-chemical means
- Formulated for use with Renderoc repair products
- Single component product — easy to use with no restrictive pot-life
- Economical - single component ensures almost no waste

Description

Nitoprime Zincrich Plus is supplied as a single component grey-coloured liquid based on metallic zinc.

Specification clause

The exposed steel surfaces shall be prepared to a minimum of ST3 standard prior to application of Nitoprime Zincrich Plus, a single-component zinc-rich coating compliant with BS EN 1504-7. An unbroken 40 microns thick coating shall be applied in one or two applications as required to provide 'active' galvanic protection in accordance with the manufacturer's written instructions. It shall have a suitable viscosity to enable the coating to penetrate imperfections and pits within the surface of corrosion-damaged steel bars. The formulation shall be such that it allows the application of the repair mortar to proceed as soon as the coating is touch dry (generally after 1 hour at 20°C.) It shall be fully compatible with the Fosroc system of concrete repair products.

Standards compliance

Nitoprime Zincrich Plus complies with LU Standard 1-085 'Fire Safety Performance of Materials'.

BS EN 1504-7: Reinforcement corrosion protection method 11.1

Properties

Test method	Typical result
Specific gravity:	2.5
Recommended thickness per coat:	40 microns (dry)
Application thickness per coat:	100 microns (wet)
Drying times —	@ 20°C
Touch dry:	1 hours
Fully dry/recoatable:	2 hours

Note: at temperatures below 20°C, the drying times will be slower.

CE 0370 09 0370-CPR-0845	UKCA 0836 22 UK0836-CPR-21/F510
DOP: UK9-48	
Fosroc International Limited Drayton Manor Business Park, Coleshill Road, Tamworth, B78 3XN, UK	
Nitoprime Zincrich Plus	
BS EN 1504-7: Reinforcement corrosion protection method 11.1	
Corrosion protection	Pass
Dangerous substances	Conforms to 5.3

Application instructions

Preparation

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a minimum of ST3 standard, paying particular attention to the back of exposed steel bars. This should be achieved by suitable mechanical means, e.g. powered wire-brushing, high pressure jetting or alternative equivalent.

Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water immediately after preparation to remove corrosion products from pits and imperfections within its surface.

Application

The application of Nitoprime Zincrich Plus must take place as soon as possible to a dry steel surface after completion of the preparation work but always within 3 hours. The material should be stirred thoroughly before use in order to redisperse any settlement.

Apply one full and unbroken coat of Nitoprime Zincrich Plus by suitable brush, making sure that the back of exposed

steel reinforcing bars are properly coated. A small brush is generally more suitable for this purpose. Allow to dry fully before continuing. If any doubt exists about having achieved an unbroken coating, a second application should be made as soon as the first coat is fully dry (generally after 2 hours).

The application of concrete repair materials may proceed as soon as the Nitoprime Zincrich Plus is touch dry (generally 1 hour — see Properties).

The primed surfaces should not be left exposed to the elements for longer than necessary before overcoating or application of the repair material. Nitoprime Zincrich Plus will, however, protect steel under clean interior exposure conditions for a period of several months. In non-aggressive exterior environments, a maximum interval of 14 days will be tolerated but in industrial and/or marine environments this interval should be reduced to the practical minimum. If the 14 days in an external environment has been exceeded, inspect the coating for signs of damage, remove any dust by vacuuming or utilising oil free compressed air. If damage is detected, remove the affected areas and re-apply Nitoprime Zincrich Plus, lapping onto adjacent areas by a minimum of 20mm.

Low temperature working

The minimum application temperature is 5°C. The material should not be applied when the substrate and/or air temperature is 5°C and falling, or is less than 3°C above the dew point. At 5°C static temperature or at 5°C and rising, the application may proceed.

Cleaning

Nitoprime Zincrich Plus should be removed from tools, equipment and mixers with Fosroc Solvent 102 immediately after use.

Estimating

Supply

Nitoprime Zincrich Plus:	1.9 litre and 800ml cans
Fosroc Solvent 102 :	5 and 25 litre tins

Coverage

Nitoprime Zincrich Plus:	8 m^2 / litre

Note: this coverage figure is theoretical — due to wastage factors and the variety and nature of possible steel substrates, practical coverage figures will be reduced.

Limitations

Nitoprime Zincrich Plus should not be applied when the temperature is below 5°C or is 5°C and falling. If any doubts arise concerning temperature or application conditions, consult the local Fosroc office.

Storage

Store in dry conditions in the original containers. Nitoprime Zincrich Plus and Fosroc Solvent 102 have a shelf life of 12 months if kept in a dry store in the original, unopened containers.

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

Precautions

Health and safety

For further information refer to the appropriate Product Safety Data Sheet

Fire

Nitoprime Zincrich Plus and Fosroc Solvent 102 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO_2 or foam. Do not use a water jet.

Flash points

Nitoprime Zincrich Plus:	41°C
Fosroc Solvent 102:	33°C

For further information, refer to the Product Material Safety Data Sheet.

Additional information

Nitoprime Zincrich Plus is the approved reinforcing steel primer for use with the Renderoc, Patchroc, Paveroc and Nitomortar systems of concrete repair.

Fosroc International Limited
Drayton Manor Business Park
Coleshill Road, Tamworth,
Staffordshire B78 3XN. UK

telephone: +44 (0) 1827 262222
fax: +44 (0) 1827 262444
email: enquiryuk@fosroc.com

www.fosroc.com

bsi. ISO 9001 Quality Management ISO 14001 Environmental Management
FM 610 EMS 61113

SAFETY DATA SHEET
NITOPRIME ZINCRICH PLUS

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name NITOPRIME ZINCRICH PLUS

Product No. 1958023, 1958220

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Rust-preventing primer.

1.3. Details of the supplier of the safety data sheet

Supplier:

Fosroc Ltd
Drayton Manor Business Park
Coleshill Road
Tamworth
Staffordshire
B77 2JU
+44 (0)1827 262222
+44 (0)1827 262444
uk@fosroc.com

1.4. Emergency telephone number

+44 (0) 1827 265 279 (08.30 to 17.00hrs Mon - Thu; 08.30 to 16.00hrs Fri)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (1999/45/EEC) Xn;R65. N;R50/53. R10.

2.2. Label elements

Contains: SOLVENT NAPHTHA

Labelling

Harmful

Dangerous for the environment

Risk Phrases

R10	Flammable.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.

Safety Phrases

S51	Use only in well-ventilated areas.
S57	Use appropriate containment to avoid environmental contamination.
S60	This material and its container must be disposed of as hazardous waste.
S61	Avoid release to the environment. Refer to special instructions/safety data sheets.
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

ZINC POWDER - ZINC DUST (STABILISED) **60-100%**

CAS-No.: 7440-66-6 **EC No.:**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	N;R50/53

SOLVENT NAPHTHA **10-30%**

CAS-No.: 64742-95-6 **EC No.: 265-199-0**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	Xn;R65.
EUH066	Xi;R37.
STOT Single 3 - H335, H336	N;R51/53.
Asp. Tox. 1 - H304	R10,R66,R67.
Aquatic Chronic 2 - H411	

1,2,4-TRIMETHYLBENZENE **5-10%**

CAS-No.: 95-63-6 **EC No.: 202-436-9**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	R10
Acute Tox. 4 - H332	Xn;R20
Skin Irrit. 2 - H315	Xi;R36/37/38
Eye Irrit. 2 - H319	N;R51/53
STOT Single 3 - H335	
Aquatic Chronic 2 - H411	

ZINC OXIDE **1-5%**

CAS-No.: 1314-13-2 **EC No.: 215-222-5**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Aquatic Acute 1 - H400	N;R50/53
Aquatic Chronic 1 - H410	

MESITYLENE **1-5%**

CAS-No.: 108-67-8 **EC No.: 203-604-4**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	R10
STOT Single 3 - H335	Xi;R37
Aquatic Chronic 2 - H411	N;R51/53

CHLORINATED PARAFFIN **1-5%**

CAS-No.: 85535-85-9 **EC No.: 287-477-0**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Aquatic Acute 1 - H400	N;R50/53.
Aquatic Chronic 1 - H410	

REACTION PRODUCT WITH FATTY ACID AND AMINOETHYLPIPERAZINE		< 1%
CAS-No.: 92062-17-4	EC No.: 295-532-5	

Classification (EC 1272/2008)	Classification (67/548/EEC)
Skin Irrit. 2 - H315	Xi;R38,R41.
Eye Dam. 1 - H318	N;R50/53.
Aquatic Acute 1 - H400	
Aquatic Chronic 1 - H410	

XYLENE		< 1%
CAS-No.: 1330-20-7	EC No.: 215-535-7	

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	R10
Acute Tox. 4 - H312	Xn;R20/21
Acute Tox. 4 - H332	Xi;R38
Skin Irrit. 2 - H315	

CUMENE		< 1%
CAS-No.: 98-82-8	EC No.: 202-704-5	

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	R10
STOT Single 3 - H335	Xn;R65
Asp. Tox. 1 - H304	Xi;R37
Aquatic Chronic 2 - H411	N;R51/53

The Full Text for all R-Phrases and Hazard Statements is Displayed in Section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Information

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Inhalation.

Move the exposed person to fresh air at once. Get medical attention. Provide rest, warmth and fresh air. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

Ingestion

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Drink plenty of water. Get medical attention immediately! Provide rest, warmth and fresh air.

Skin Contact

Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.

Eye Contact

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General Information

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

Inhalation.

Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion

The product causes irritation of mucous membranes and may cause abdominal discomfort if swallowed.

Skin Contact

Acts as a defatting agent on skin. May cause cracking of skin, and eczema. Prolonged or repeated exposure may cause severe irritation.

Eye Contact

May cause severe irritation to eyes.

4.3. Indication of any immediate medical attention and special treatment needed

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing Media

Fire can be extinguished using: Dry chemicals, sand, dolomite etc.

5.2. Special hazards arising from the substance or mixture

Hazardous Combustion Products

During fire, toxic gases (CO, CO2) are formed.

Unusual Fire & Explosion Hazards

FLAMMABLE.

Specific Hazards

Dust may form an explosive mixture in the atmosphere.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Avoid breathing fire vapours. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control.

Protective Measures In Fire

Wear full protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For personal protection, see section 8.

6.2. Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up

Wear necessary protective equipment. Absorb in vermiculite, dry sand or earth and place into containers. Do not contaminate water sources or sewer.

6.4. Reference to other sections

For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

Storage Class

Flammable liquid storage.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
1,2,4-TRIMETHYLBENZENE	WEL	25 ppm	125 mg/m3			
CUMENE	WEL	25 ppm	125 mg/m3	50 ppm	250 mg/m3	Sk
MESITYLENE	WEL	25 ppm	125 mg/m3			
SOLVENT NAPHTHA	WEL	19 ppm				
XYLENE	WEL	50 ppm	220 mg/m3	100 ppm	441 mg/m3	Sk

WEL = Workplace Exposure Limit.
Sk = Can be absorbed through skin.

Ingredient Comments

WEL = Workplace Exposure Limits

8.2. Exposure controls

Protective Equipment


Process Conditions

Use engineering controls to reduce air contamination to permissible exposure level.

Engineering Measures

Provide adequate general and local exhaust ventilation.

Respiratory Equipment

No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit.

Hand Protection

Use protective gloves.

Eye Protection

Wear approved safety goggles.

Other Protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.

Hygiene Measures

DO NOT SMOKE IN WORK AREA! Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. Wash promptly with soap & water if skin becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Grey
Odour	Aromatic.
Solubility	Insoluble in water
Initial Boiling Point and Boiling Range:	155 - 181
Vapour Pressure	0.25 kPa 20
Evaporation Rate	0.20 (EtOH=1)
Viscosity	6 Ps
Flash Point (°C)	41°C
Auto Ignition Temperature (°C)	> 450

9.2. Other information

Volatile Organic Compound (VOC)	320 g/litre

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reaction with: Acids. Oxidising materials.

10.2. Chemical stability

Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions will not occur under normal transport or storage conditions.

10.4. Conditions to avoid

Avoid contact with acids and oxidising substances.

10.5. Incompatible materials

Materials To Avoid

Acids, oxidising.

10.6. Hazardous decomposition products

Fire creates: Toxic gases/vapours/fumes of: Carbon monoxide (CO). Carbon dioxide (CO2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Health Warnings INHALATION. Prolonged inhalation of high concentrations may damage respiratory system. SKIN CONTACT. Acts as a defatting agent on skin. May cause cracking of skin, and eczema. Prolonged or repeated exposure may cause severe irritation. EYE CONTACT. May cause severe irritation to eyes. INGESTION. The product causes irritation of mucous membranes and may cause abdominal discomfort if swallowed.

Target Organs

Skin Eyes Respiratory system, lungs

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

The product contains a substance which is very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

12.1. Toxicity

Acute Fish Toxicity

No data available.

12.2. Persistence and degradability

Degradability:

The product is not expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative Potential:

No data available on bioaccumulation.

12.4. Mobility in soil

Mobility:

The product contains substances which are insoluble in water and which sediment in water systems. The product contains volatile substances, which may spread in the atmosphere.

12.5. Results of PBT and vPvB assessment

Assessment not carried out but this product is believed not to be a PBT nor a vPvB.

12.6. Other adverse effects

When used and disposed of as intended no adverse environmental effects are foreseen

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements.

Waste Class 08-02-99

Waste Class H9, H14

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN) 1263

UN No. (IMDG) 1263

UN No. (ICAO) 1263

14.2 UN Proper shipping name

Proper Shipping Name PAINT RELATED MATERIAL (ZINC POWDER - ZINC DUST (STABILISED))

14.3 Transport hazard class(es)

ADR/RID/ADN Class 3

ADR/RID/ADN Class Class 3: Flammable liquids.

ADR Label No.	3
IMDG Class	3
ICAO Class/Division	3

Transport Labels

14.4. Packing group

ADR/RID/ADN Packing group	III
IMDG Packing group	III
ICAO Packing group	III

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

14.6. Special precautions for user

EMS	F-E, S-E
Emergency Action Code	•3YE
Hazard No. (ADR)	30
Tunnel Restriction Code	(D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not relevant.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Environmental Listing

Rivers (Prevention of Pollution) Act 1961. Control of Pollution (Special Waste Regulations) Act 1980.

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716).

Approved Code Of Practice

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40.

Introduction to Local Exhaust Ventilation HS(G)37.

CHIP for everyone HSG(108).

EU Legislation

System of specific information relating to Dangerous Preparations. 2001/58/EC.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General Information

Only trained personnel should use this material.

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date	13/08/2012
Revision	4

Risk Phrases In Full

R10	Flammable.
R20/21	Harmful by inhalation and in contact with skin.
R20	Harmful by inhalation.
R65	Harmful: may cause lung damage if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
R38	Irritating to skin.
R66	Repeated exposure may cause skin dryness or cracking.
R41	Risk of serious damage to eyes.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67	Vapours may cause drowsiness and dizziness.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full

H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H226	Flammable liquid and vapour.
H332	Harmful if inhaled.
H312	Harmful in contact with skin.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H335	May cause respiratory irritation.
EUH066	Repeated exposure may cause skin dryness or cracking.
H411	Toxic to aquatic life with long lasting effects.
H410	Very toxic to aquatic life with long lasting effects.
H400	Very toxic to aquatic life.

Fosroc® Renderoc GP

constructive solutions

General purpose medium density concrete reinstatement mortar conforming to the requirements of BS EN 1504-3 Class R3

Uses

For the reinstatement of concrete where low permeability characteristics are required but where high compressive strength is not the most important consideration. Where higher compressive strengths and low permeability characteristics are required, Renderoc HB45 should be used.

Renderoc GP has been specifically developed as a general purpose repair mortar that can also be used as a render coat.

Renderoc GP is suitable for repair methods 3.1, 3.3, 4.4, 7.1, 7.2 as defined by BS EN 1504-3.

Advantages

- Compatibility with concrete of compressive strength 20- 35 N/mm²
- Frequently obviates the need for formwork
- Extremely low permeability to water, carbon dioxide and chlorides
- Exceptional system of shrinkage compensation provides long-term dimensional stability
- Can be applied quickly and efficiently by wet spraying
- One component, pre-bagged to overcome site-batched variations
- Contains no chloride admixtures
- Shade can be varied with Renderoc Lightener / Darkener*

Description

Renderoc GP is supplied as a ready to use blend of dry powders requiring only the site addition of clean water to produce a highly consistent, lightweight repair mortar.

It is based on Portland cements, graded aggregates and chemical additives which provide a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability.

Renderoc GP has been specifically engineered for vertical repair work. It can be applied in sections up to 70 mm thickness in vertical locations and up to 60 mm thickness in overhead locations in a single application and without the use of formwork. Thicker sections can be achieved by the use of formwork or can be built up in layers. Deep pockets can sometimes be filled in a single application dependent on the configuration of the pocket and the volume of exposed reinforcing steel.

Renderoc GP can be quickly and efficiently applied by the wet spray technique. Consult the local Fosroc office for further information.

The material should not be applied at less than 10 mm thickness.

**Refer to separate datasheet*

CE	UKCA
0370 09 0370–CPR–0845	0836 22 UK 0836–CPR–22/F6049

DOP: UK9-13

Fosroc International Limited

Drayton Manor Business Park, Coleshill Road, Tamworth, B78 3XN, UK

Fosroc® Renderoc GP

EN 1504-3:
Structural and non-structural repair methods 3, 4 and 7

Compressive strength	Class R3: ≥ 25 MPa
Chloride ion content	≤ 0.05%
Adhesive strength by pull-off test	≥ 1.5 MPa
Thermal compatibility: freeze thaw cycling with immersion	≥ 1.5 MPa
Carbonation resistance	Pass
Elastic modulus	15.1 GPa
Reaction to fire	Class A1
Dangerous substances	Complies with 5.4

Specification clause

The repair mortar shall be Renderoc GP, a one component, medium density cementitious mortar, conforming to the requirements of BS EN 1504-3 Class R3. The cured mortar shall achieve a compressive strength of 15 MPa at 1 Day, 30 MPa at 28 Days and a drying shrinkage of <300 micro-strain at 7 days. It shall be able to be applied in sections up to 70 mm thickness in vertical locations and up to 60 mm thickness in overhead locations in a single application without formwork. The product shall be mixed, applied and cured in accordance with the manufacturer's written instructions to a correctly prepared substrate.

Fosroc® Renderoc GP

Properties

The following results were obtained at a water : powder ratio of 0.18 and at a temperature of 20°C unless otherwise stated.

Test Method	Standard	EN 1504 R3 Requirement	Test Result
Compressive strength	EN 12190:1999	≥ 25 MPa	@ 1 Day 15 MPa @ 28 Days 30 MPa
Bond strength by pull off:	EN 1542:1999	≥ 1.5 MPa	1.8 MPa
Chloride ion content:	EN 1015-17:2000	≤ 0.05 MPa	0.03%
Freeze thaw cycling:	EN 13687-1:2002	≥ 1.5 MPa	1.6 MPa
Resistance to carbonation d_k	EN 13295:2005	d_k ≤ ref concrete	Conforms
Fire rating	EN 1504-3 cl. 5.5	-	Class A1Non-Combustible
Flexural strength	BS 6319 Pt 3:1990	-	7.1 MPa @ 28 days
Setting time	BS4551:2005+A2:2013	-	Initial set: 3 1/2 hours Final set: 4 hours
Elastic Modulus	EN 13412	≥ 15 GPa	15.1 GPa @ 28 days
Fresh wet density	-	-	Nominally 1800kg/m³
Shrinkage **25 x 25 x 285 prisms,** **27 °C, 55% RH**	-	-	< 300 microstrain @ 7days
Chemical resistance	-	-	The low permeability of Renderoc GP severely retards chemical attack in aggressive environments. The cured mortar is impermeable to acid gases, waterborne chloride ions and oxygen.
Build Characteristics **(hand applied)** **Minimum thickness:** **Overhead:** **Vertical:**	-	-	 10 mm Up to 60 mm Up to 70 mm

Clarification of property values: The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary. Maximum build thickness is dependent on location of repair, water content and application technique.

Standard compliance

Renderoc GP complies with the class R3 according to EN1504-3, repair methods 3.1, 3.3, 4.4, 7.1 and 7.2.

Application instructions

Preparation

Form a square edge perimeter to the repair area using appropriate methods (feather edging must be avoided), break out the complete repair area up to a minimum depth of 10mm up to the square edge.

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 abrasive-blasting.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

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. Abrasive blasting, hydrodem equipment, powered mechanical scraping or other suitable means 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 abrasive-blasting to remove corrosion products from pits and imperfections within its surface.

Refer to HSE information sheet CIS36 regarding control of exposure to construction dust, available at www.hse.gov.uk.

Reinforcing steel priming

Apply one full coat of Nitoprime Zincrich Plus 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.

Fosroc® Renderoc GP

Concrete Priming

The concrete substrate should be saturated surface dry immediately before the application of the primer i.e. it should be thoroughly saturated with clean water and any residual surface water removed prior to applying Nitobond HAR.

Under severe drying conditions repeated soaking may be necessary to ensure the substrate is still saturated at the time of application of the primer.

Scrub Nitobond HAR into the surface.

Renderoc GP can be applied as soon as the primer becomes tacky. If the Nitobond HAR is too wet, overhead and vertical build-up of the Renderoc GP may be difficult.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the substrate is wet or likely to remain permanently damp, Nitobond EP bonding aid should be used. Contact the local Fosroc office for further information.

Mixing

Care should be taken to ensure that Renderoc GP is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved Renderoc Mixing Paddle (MR4) with a slow speed (400/500 rpm) heavy-duty drill is acceptable for the occasional one-bag mix.

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

For normal applications, place 4.0 to 5.0 litres of drinking quality water into the mixer.

With the machine in operation, add one full bag of Renderoc GP and mix, for a minimum of 3 minutes and a maximum of 5 minutes, until fully homogeneous.

The consistency may be adjusted by the addition of small amounts of water up to the maximum total water content of 5.0 litres.

Note that the powder must always be added to the water.

Mixing warning

As with other ‘one pack’ repair mortars, Renderoc GP may exhibit satisfactory handling characteristics even though inadequately mixed. This will result in a significantly lower level of performance or possible failure. It is therefore essential that mixing instructions are strictly adhered to with particular emphasis on the quantity of water used and the time of the mixing operation.

Application

Exposed steel reinforcing bars should be firmly secured to prevent movement during application.

Apply the mixed Renderoc GP by gloved hand or trowel, thoroughly compacting onto the primed substrate and around exposed reinforcement.

If sagging or slumping occurs the Renderoc GP should be completely removed and reapplied at a reduced thickness to a correctly primed substrate

Build-up

Additional build-up can be achieved by application of multiple layers.

The surface of the intermediate layers should be comb scratch-keyed and cured with Nitobond AR. Repriming with Nitobond HAR and a further application of Renderoc GP may proceed as soon as this layer has set.

Spray application

Renderoc GP 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 wet spray techniques contact the local Fosroc office.

Finishing

Renderoc GP is finished by striking off with a straight edge and closing with a steel float. Wooden or plastic floats, or damp sponges, may be used to achieve the desired surface texture. The completed surface should not be overworked. After spray application, the mortar may need to be ‘cut back’ to the required profile using a steel float and then finished with damp sponges as described above.

Low temperature working

In cold conditions down to 3°C, the use of warm mixing water (up to 30°C) is advisable to accelerate strength development. Normal precautions for winter working with cementitious materials should then be adopted. The material should not be applied when the substrate and/or air temperature is 3°C and falling. At 3°C static temperature or at 3°C and rising, the application may proceed.

High temperature working

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

Curing

Renderoc GP is a cement-based repair mortar. In common with all cementitious materials, it must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR, sprayed on to the surface of the finished mortar in a continuous film, is recommended. A low pressure atomising sprayer is essential for applying the Nitobond AR. Any excessive run-off on verticals or drips on soffits should be removed by brush before they harden.

Large areas should be cured as trowelling progresses (0.5 m^2 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 protective decorative finishes

Renderoc GP is extremely durable and will provide long-term protection to the embedded steel reinforcement within the repaired locations. The surrounding parts of the structure will benefit from the application of a barrier/decorative coating to limit the advance of chlorides and carbon dioxide, bringing them to the same protective standard as the repair itself. Fosroc recommend the use of the Dekguard range of protective, anti-carbonation coatings. These products provide a decorative and uniform appearance as well as protecting areas of the structure which might otherwise be at risk from the environment. Dekguard products may be applied over the repair area without prior removal of the Nitobond AR curing membrane. Other curing membranes must be removed prior to the application of Dekguard products.

Cleaning

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

Clean tools used with Nitoprime Zincrich Plus and Nitobond EP before material cures, using Fosroc Solvent 102.

Estimating

Supply	
Renderoc GP:	25 kg bags
Nitoprime Zincrich Plus:	1.9 litre and 800 ml cans
Nitobond HAR	5 litre drums
Nitobond AR:	5 litre drums
Fosroc Solvent 102:	5 and 25 litre tins

Coverage and yield	
Renderoc GP:	Approximately 16 litres / 25 kg bag (approximately 1.6 m² at 10 mm thickness)
Nitoprime Zincrich Plus:	8 m^2/ litre
Nitobond AR:	6 - 8 m^2/ litre
Nitoprime HAR	3 - 4 m^2/ litre

Notes: the actual yield per bag of Renderoc GP will depend on the consistency used. The yield will be reduced if the material is applied by a spray technique.

Limitations

Renderoc GP should not be used when the temperature is below 3°C and falling. Do not mix part bags. Due to the nature of Renderoc GP, the product should not be used in areas subjected to traffic (in these circumstances, Renderoc S should be considered).

Renderoc GP 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, consult the local Fosroc office.

Storage

The product has a shelf life of 12 months from the date of manufacture if kept in dry storage in the original, unopened bags. If stored at high temperatures and/or high humidity the shelf life may be reduced to less than 6 months.

Nitobond AR and Nitobond HAR should be protected from frost.

Precautions

Health and safety

For further information refer to the appropriate Safety Data Sheets available at www.fosroc.com

Fire

Renderoc GP is non-flammable.

Nitoprime Zincrich Plus and Fosroc Solvent 102: are flammable. Keep away from sources of ignition. No Smoking. In the event of fire, extinguish with CO_2 or foam. Do not use a water jet

Flash points

Nitoprime Zincrich Plus:	41°C
Fosroc Solvent 102:	33°C

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email: enquiryuk@fosroc.com

www.fosroc.com

SAFETY DATA SHEET
RENDEROC GP

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name RENDEROC GP

Product No. 2197002UK9

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Cementitious overlay

1.3. Details of the supplier of the safety data sheet

Supplier

FOSROC Limited
Drayton Manor Business Park
Coleshill Road
Tamworth
Staffordshire
B78 3XN
Tel. +44 (0) 1827 262222
Fax. +44 (0) 1827 262444
enquiryuk@fosroc.com

1.4. Emergency telephone number

+44 (0) 1827 265 279 (08.30 to 17.00hrs Mon - Thu; 08.30 to 16.00hrs Fri)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Skin Irrit. 2 - H315;Eye Dam. 1 - H318;Skin Sens. 1 - H317;STOT SE 3 - H335
Environment	Not classified.

Classification (1999/45/EEC) Xi;R37/38, R41. R43.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health

Dust or splashes from the mixture may cause permanent eye damage. Dust may irritate throat and respiratory system and cause coughing. Dust has an irritating effect on moist skin. Prolonged contact with wet cement/mixture may cause burns. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Environment

In the presence of water the product hardens to a solid mass which is not biodegradable.

2.2. Label elements

Contains ORDINARY PORTLAND CEMENT

Label In Accordance With (EC) No. 1272/2008

Signal Word	Danger	
Hazard Statements		
	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H318	Causes serious eye damage.
	H335	May cause respiratory irritation.
Precautionary Statements		
	P271	Use only outdoors or in a well-ventilated area.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P501	Dispose of contents/container in accordance with national regulations.
Supplementary Precautionary Statements		
	P272	Contaminated work clothing should not be allowed out of the workplace.
	P261	Avoid breathing vapour/spray.
	P264	Wash contaminated skin thoroughly after handling.
	P321	Specific treatment (see medical advice on this label).
	P302+352	IF ON SKIN: Wash with plenty of soap and water.
	P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P312	Call a POISON CENTER or doctor/physician if you feel unwell.
	P332+313	If skin irritation occurs: Get medical advice/attention.
	P333+313	If skin irritation or rash occurs: Get medical advice/attention.
	P362	Take off contaminated clothing and wash before reuse.
	P363	Wash contaminated clothing before reuse.
	P403+233	Store in a well-ventilated place. Keep container tightly closed.
	P405	Store locked up.

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

SILICA SAND **30-60%**

CAS-No.: 14808-60-7 **EC No.: 238-878-4**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	Not classified.

ORDINARY PORTLAND CEMENT **30-60%**

CAS-No.: 65997-15-1 **EC No.: 266-043-4**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Skin Sens. 1 - H317 STOT SE 3 - H335	Xi;R37/38,R41. R43.

SILICA SAND **10-30%**

CAS-No.: 14808-60-7 **EC No.: 238-878-4**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	Not classified.

ALUMINA SILICATE HOLLOW MICROSPHERES **5-10%**

CAS-No.: 14808-60-7 **EC No.:**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	Not classified.

CALCIUM SULPHO-ALUMINATE CEMENT **< 1%**

CAS-No.: 12004-14-7 **EC No.:**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Skin Irrit. 2 - H315 STOT SE 3 - H335	Xi;R37/38.

CALCIUM STEARATE POWDER **< 1%**

CAS-No.: 1592-23-0 **EC No.: 216-472-8**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Eye Irrit. 2 - H319 STOT SE 3 - H335	Not classified.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

No personal protective equipment is needed for first aid responders. First aid workers should avoid contact with wet cement or wet cement containing perparations.

Inhalation

Move the exposed person to fresh air at once. Dust in throat and nasal passages should clear spontaneously. Get medical attention if irritation persists or later develops, or if discomfort, coughing or other symptoms persist.

Ingestion

DO NOT INDUCE VOMITING! Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Get medical attention immediately!

Skin contact

Wash immediately with copious quantities of water. Remove contaminated clothing immediately. Obtain medical advice if skin orders develop.

Eye contact

Do not rub eye. Make sure to remove any contact lenses from the eyes before rinsing. Hold eyelids apart. Rinse the eye with water immediately. Continue to rinse for 30 minutes. Obtain medical attention and bring these instructions.

4.2. Most important symptoms and effects, both acute and delayed

General information

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

Inhalation

Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Ingestion

Ingestion of large doses may result in irritation to the gastrointestinal tract.

Skin contact

May have an irritating effect on moist skin after prolonged contact, or may cause dermatitis after repeated contact.
Prolonged skin contact with wet preparation may cause serious burns without pain being felt, including through clothing.

Eye contact

Eye contact may cause serious and potentially irreversible injuries.

4.3. Indication of any immediate medical attention and special treatment needed

No specific first aid measures noted.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

There are no anticipated hazardous decomposition products associated with this material.

Unusual Fire & Explosion Hazards

No unusual fire or explosion hazards noted.

Specific hazards

Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

5.3. Advice for firefighters

Special Fire Fighting Procedures

No specific fire fighting procedure given.

Protective equipment for fire-fighters

Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid inhalation of dust. Use work methods which minimize dust production. Avoid contact with eyes and prolonged skin contact. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

The product should not be dumped in nature but collected and delivered according to agreement with the local authorities. Do not discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. Dry material: Collect powder using special dust vacuum cleaner with particle filter. Alternatively, damp powder with fine spray (to avoid dust formation) and remove slurry. Place into container and allow to solidify before disposal as described in section 13. Wet material: Clean up wet material and place in a container. Allow to dry and solidify before disposal as described in section 13.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not eat, drink or smoke when using the product. Avoid spreading dust. Avoid inhalation of dust. Avoid contact with skin and eyes. Mechanical ventilation or local exhaust ventilation may be required. Change contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry and cool place. Unsuitable containers: aluminium. The product contains less than 2 mg chromate/kg dry cement, and this limit will not be exceeded for 12 months from the packing date stated on the packaging. Seal opened containers and use up as soon as possible To be stored out of reach of children in its original packaging in a dry place.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
ALUMINA SILICATE HOLLOW MICROSPHERES			10 mg/m3			
CALCIUM STEARATE POWDER			10 mg/m3			
CALCIUM SULPHO-ALUMINATE CEMENT			10 mg/m3			
ORDINARY PORTLAND CEMENT	WEL		10 mg/m3			
SILICA SAND	WEL		0,1 mg/m3			
SILICA SAND	WEL		0,1 mg/m3			

WEL = Workplace Exposure Limit.
TLV - Threshold Limit Value

8.2. Exposure controls

Protective equipment

Process conditions

This product contains silica sands.
The grain size distribution of silica sand present means that it is not classified as hazardous.
However, any respirable crystalline dust generated by secondary processing may may cause health effects.
Prolonged and /or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness.
Occupational exposure to respirable crystalline silica dust should be monitored and controlled

Engineering measures

Atmospheric levels of dust must be maintained within the Occupational Exposure Limit. Where mechanical methods are inadequate or impractical, appropriate personal protective equipment must be used.

Respiratory equipment

Use respiratory equipment with particle filter, type P2.

Hand protection

Use impervious, abrasion and alkali resistant gloves. Barrier cream applied before work may make it easier to clean the skin after exposure, but does not prevent absorption through the skin.

Eye protection

Wear approved safety goggles. (conform EN 166)

Other Protection

Use barrier creams to prevent skin contact. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Personal protection

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. This product may present a chromate (VI) allergy risk. It contains a chromate reducing agent, but users should wear appropriate personal protective equipment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Powder, dust
Colour	Grey.
Odour	Odourless.
Solubility	Slightly soluble in water. Hardens in contact with water.

Initial boiling point and boiling range (°C)

Not applicable.

Melting point (°C)	>1250°C
pH-Value, Conc. Solution	>12
Flash point (°C)	None

Auto Ignition Temperature (°C)

Not determined.

Explosive properties

Not known.

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

When mixed with water, hardens to form a stable mass that is not reactive in normal conditions.

10.2. Chemical stability

Stable under the prescribed storage conditions. When stored under humid conditions, the chromate neutralization will decrease. This product contains a chromate reducing agent to reduce the risk of allergic dermatitis causes by chromium (VI). This product has a shelf life. If not stored in accordance with packaging instructions (sealed and dry), there is an increased risk of the presence of hexavalent chromate leading to an increased risk of an allergic reaction.

10.3. Possibility of hazardous reactions

Not known.

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Water, moisture.

10.5. Incompatible materials

Materials To Avoid

Acids Chemically active metals.

10.6. Hazardous decomposition products

No hazardous decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Respiratory or skin sensitisation:

Some individuals may exhibit eczema upon exposure to wet cement caused either by the high pH which induces irritant contact dermatitis, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis. If the cement contains a soluble Cr (VI) reducing agent and as long as the mentioned period of effectiveness is not exceeded, a sensitising effect is not expected.

Inhalation

Irritating to respiratory system. Inflammation of the nasal mucous membrane by exposure to cement dust.

Ingestion

May cause irritation of mouth, throat and digestive tract.

Skin contact

Strongly irritating. Prolonged contact may cause burns. May cause sensitisation by skin contact.

Eye contact

Irritating and may injure eye tissue if not removed promptly.

Health Warnings

Repeated and/or prolonged contact may lead to dermatitis

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The product is not expected to be hazardous to the environment.

12.1. Toxicity

Acute Toxicity - Fish

Not determined.

The product is not expected to be hazardous to the environment. The addition of cements to water will, however, cause the pH to rise and may therefore be toxic to aquatic life in some circumstances.

12.2. Persistence and degradability

Degradability

The product is not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential

The product is not bioaccumulating.

12.4. Mobility in soil

Mobility:

The product hardens to a solid immobile substance. The product is not volatile but may be spread by dust-raising handling.

12.5. Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

Do not empty into drains, sewers or water courses. Cement that has exceeded its shelf life: when demonstrated that it contains more than 0.0002% Cr (VI), the product shall not be used other than in controlled closed and totally automated processes. It may be recycled and/or treated again with a reducing agent.

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Note that fully cured material is not considered as hazardous waste.

SECTION 14: TRANSPORT INFORMATION

General The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not relevant

14.2. UN proper shipping name

Not relevant

14.3. Transport hazard class(es)

Not relevant

14.4. Packing group

Not relevant

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not relevant

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not relevant

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Uk Regulatory References

The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments.

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716).

Approved Code Of Practice

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Safety Data Sheets for Substances and Preparations.

Guidance Notes

Workplace Exposure Limits EH40.

CHIP for everyone HSG(108).

EU Legislation

Dangerous Substance Directive 67/548/EEC.

Dangerous Preparations Directive 1999/45/EC.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information

Only trained personnel should use this material.

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date	31 October 2014
Revision	8
SDS No.	10838

Risk Phrases In Full

R36/37	Irritating to eyes and respiratory system.
R37/38	Irritating to respiratory system and skin.
R43	May cause sensitisation by skin contact.
NC	Not classified.
R41	Risk of serious damage to eyes.

Hazard Statements In Full

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Fosroc® Renderoc HB

constructive solutions

High performance lightweight concrete reinstatement mortar conforming to the requirements of BS EN 1504-3 Class R2

Uses

For the reinstatement of concrete where low permeability characteristics are required but where high compressive strength is not the most important consideration. If high compressive strengths and low permeability characteristics are required, Renderoc HB45 should be used.

Renderoc HB has been specifically developed for vertical and overhead repair work where its lightweight nature and high build characteristics makes it ideal.

Renderoc HB is suitable for repair methods 3.1, 3.3, 7.1, 7.2 as defined by BS EN 1504-3.

Advantages

- Compatibility with non-structural concrete of compressive strength 15 - 25 N/mm²
- Lightweight formulation enables extra high-build — fewer cold joints
- Frequently obviates the need for formwork
- Polymer-modification provides extremely low permeability to water, carbon dioxide and chlorides
- Exceptional system of shrinkage compensation provides long-term dimensional stability
- Can be applied quickly and efficiently by wet spraying
- One component, pre-bagged to overcome site-batched variations
- Contains no chloride admixtures
- Shade can be varied with Renderoc Lightener / Darkener*

Description

Renderoc HB is supplied as a ready to use blend of dry powders requiring only the site addition of clean water to produce a highly consistent, lightweight repair mortar.

It is based on Portland cements, graded aggregates, lightweight fillers and chemical additives which provide a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability.

Renderoc HB has been specifically engineered for vertical and overhead repair work. It can be applied in sections up to 100 mm thickness in vertical locations and up to 60 mm thickness in overhead locations in a single application and without the use of formwork. Thicker sections can be achieved by the use of formwork or can be built up in layers. Deep pockets can sometimes be filled in a single application dependent on the configuration of the pocket and the volume of exposed reinforcing steel.

Renderoc HB can be quickly and efficiently applied by the wet spray technique. Consult the local Fosroc office for further information.

The material should not be applied at less than 10 mm thickness.

Standards compliance

Renderoc HB complies with the class R2 according to EN1504-3, repair methods 3.1, 3.3, 7.1 and 7.2.

Renderoc HB complies with LU Standard 1-085 ‘Fire Safety Performance of Materials’.

CE	UK CA
0370 09 0370–CPR–0845	0836 22 UK 0836–CPR–22/F6049
DOP: UK9-90	
Fosroc International Limited **Drayton Manor Business Park, Coleshill Road, Tamworth, B78 3XN, UK**	
Fosroc® Renderoc HB	
EN 1504-3: Non-structural concrete repair mortar Non-structural repair methods 3.1, 7.1 and 7.2	
Compressive strength	≥ 15 MPa
Chloride ion content	≤ 0.05%
Adhesion strength by pull-off test	≥ 0.8 MPa
Thermal compatibility: freeze-thaw cycling with immersion	≥ 0.8 MPa
Carbonation resistance	DK ≤ reference concrete
Capillary absorption (water permeability)	< 0.5kg/(m^2.h$^{0.5}$)
Reaction to fire	Class A2 s1 d0
Dangerous substances	Complies with 5.4

**Refer to separate datasheet*

Fosroc® Renderoc HB

Properties

The following results were obtained at a water : powder ratio of 0.18 and at a temperature of 20°C unless otherwise stated.

Test Method	Standard	EN 1504 R2 Requirement	Test Result
Compressive strength	EN 12190:1999	≥ 15 MPa	@ 1 Day 10 MPa @ 28 Days 22 MPa
Bond strength by pull off:	EN 1542:1999	≥ 0.8 MPa	1.9 MPa
Chloride ion content:	EN 1015-17:2000	≤ 0.05 %	0.02%
Freeze thaw cycling:	EN 13687-1:2002	≥ 0.8 MPa	0.8 MPa
Fire rating	EN 13501-1	-	Class A2 s1 d0 Non-Combustible
Setting time	BS4551:2005+A2:2013	-	Initial set: 3.5 hours Final set: 5.5 hours
Fresh wet density	-	-	Nominally 1430 kg/m^3
Shrinkage **25 x 25 x 285 prisms,** **27 °C, 55% RH**	-	-	< 300 microstrain @ 7days
Chemical resistance	-	-	The low permeability of Renderoc HB severely retards chemical attack in aggressive environments. The cured mortar is impermeable to acid gases, waterborne chloride ions and oxygen.
Build Characteristics (hand applied) **Minimum thickness:** **Overhead:** **Vertical:**	 - - -	 - - -	 10 mm Up to 60 mm Up to 100 mm

Clarification of property values: The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary. Maximum build thickness is dependent on location of repair, water content and application technique.

Application instructions

Preparation

Form a square edge perimeter to the repair area using appropriate methods (feather edging must be avoided), break out the complete repair area up to a minimum depth of 10mm up to the square edge.

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 abrasive-blasting.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

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. Abrasive blasting, hydrodem equipment, powered mechanical scraping or other suitable means 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 abrasive-blasting to remove corrosion products from pits and imperfections within its surface.

Refer to HSE information sheet CIS36 regarding control of exposure to construction dust, available at www.hse.gov.uk.

Reinforcing steel priming

Apply one full coat of Nitoprime Zincrich Plus 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.

Fosroc® Renderoc HB

Concrete Priming

The concrete substrate should be saturated surface dry immediately before the application of the primer i.e. it should be thoroughly saturated with clean water and any residual surface water removed prior to applying Nitobond HAR.

Under severe drying conditions repeated soaking may be necessary to ensure the substrate is still saturated at the time of application of the primer.

Scrub Nitobond HAR into the surface.

Renderoc HB can be applied as soon as the primer becomes tacky. If the Nitobond HAR is too wet, overhead and vertical build-up of the Renderoc HB may be difficult.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the substrate is water immersed or likely to remain permanently damp, Nitobond EP bonding aid should be used. Contact the local Fosroc office for further information.

Mixing

Care should be taken to ensure that Renderoc HB is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved Renderoc Mixing Paddle (MR4) with a slow speed (400/500 rpm) heavy-duty drill is acceptable for the occasional one-bag mix.

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

For normal applications, place 3.1 to 3.4 litres of drinking quality water into the mixer.

With the machine in operation, add one full bag of Renderoc HB and mix, for a minimum of 3 minutes and a maximum of 5 minutes, until fully homogeneous.

The consistency may be adjusted by the addition of small amounts of water up to the maximum total water content of 3.4 litres.

Note that the powder must always be added to the water.

Mixing warning

As with other ‘one pack’ repair mortars, Renderoc HB may exhibit satisfactory handling characteristics even though inadequately mixed. This will result in a significantly lower level of performance or possible failure. It is therefore essential that mixing instructions are strictly adhered to with particular emphasis on the quantity of water used and the time of the mixing operation.

Application

Exposed steel reinforcing bars should be firmly secured to prevent movement during application.

Apply the mixed Renderoc HB by gloved hand or trowel, thoroughly compacting onto the primed substrate and around exposed reinforcement.

If sagging or slumping occurs Renderoc HB should be completely removed and reapplied at a reduced thickness to a correctly primed substrate.

Build-up

Additional build-up can be achieved by application of multiple layers.

The surface of the intermediate layers should be comb scratch-keyed and cured with Nitobond AR. Repriming with Nitobond HAR and a further application of Renderoc HB may proceed as soon as this layer has set.

Spray application

Renderoc HB 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 wet spray techniques contact the local Fosroc office.

Finishing

Renderoc HB is finished by striking off with a straight edge and closing with a steel float. Wooden or plastic floats, or damp sponges, may be used to achieve the desired surface texture. The completed surface should not be overworked. After spray application, the mortar may need to be ‘cut back’ to the required profile using a steel float and then finished with damp sponges as described above.

Low temperature working

In cold conditions down to 3°C, the use of warm mixing water (up to 30°C) is advisable to accelerate strength development. Normal precautions for winter working with cementitious materials should then be adopted. The material should not be applied when the substrate and/or air temperature is 3°C and falling. At 3°C static temperature or at 3°C and rising, the application may proceed.

High temperature working

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

Curing

Renderoc HB is a cement-based repair mortar. In common with all cementitious materials, it must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR, sprayed on to the surface of the finished mortar in a continuous film, is recommended. A low pressure atomising sprayer is essential for applying the Nitobond AR. Any excessive run-off on verticals or drips on soffits should be removed by brush before they harden.

Large areas should be cured as trowelling progresses (0.5 m^2 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 protective decorative finishes

Renderoc HB is extremely durable and will provide long-term protection to the embedded steel reinforcement within the repaired locations. The surrounding parts of the structure will benefit from the application of a barrier/decorative coating to limit the advance of chlorides and carbon dioxide, bringing them to the same protective standard as the repair itself. Fosroc recommend the use of the Dekguard range of protective, anti-carbonation coatings. These products provide a decorative and uniform appearance as well as protecting areas of the structure which might otherwise be at risk from the environment. Dekguard products may be applied over the repair area without prior removal of the Nitobond AR curing membrane. Other curing membranes must be removed prior to the application of Dekguard products.

Cleaning

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

Clean tools used with Nitoprime Zincrich Plus and Nitobond EP before material cures using Fosroc Solvent 102.

Estimating

Supply

Renderoc HB:	18 kg bags
Nitoprime Zincrich Plus:	1.9 litre and 800 ml cans
Nitobond HAR	5 litre drums
Nitobond AR:	5 litre drums
Fosroc Solvent 102:	5 and 25 litre tins

Coverage and yield

Renderoc HB:	Approximately 14.5 -15.0 litres / 18 kg bag (approximately 1.5 m² at 10 mm thickness)
Nitoprime Zincrich Plus:	8 m²/litre
Nitobond AR:	6 - 8 m²/ litre
Nitoprime HAR	3 - 4 m²/ litre

Notes: the actual yield per bag of Renderoc HB will depend on the consistency used. The yield will be reduced if the material is applied by a spray technique.

Limitations

Renderoc HB should not be used when the temperature is below 3°C and falling. Do not mix part bags. Due to the lightweight nature of Renderoc HB, the product should not be used in areas subjected to traffic (in these circumstances, Renderoc S should be considered).

Renderoc HB 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, consult the local Fosroc office.

Storage

The product has a shelf life of 12 months from the date of manufacture if kept in dry storage in the original, unopened bags. If stored at high temperatures and/or high humidity the shelf life may be reduced to less than 6 months.

Nitobond AR and Nitobond HAR should be protected from frost.

Precautions

Health and safety

For further information refer to the appropriate Safety Data Sheets available at www.fosroc.com

Fire

Renderoc HB is non-flammable.

Nitoprime Zincrich Plus and Fosroc Solvent 102: are flammable. Keep away from sources of ignition. No Smoking. In the event of fire, extinguish with CO_2 or foam. Do not use a water jet

Flash points

Nitoprime Zincrich Plus:	41°C
Fosroc Solvent 102:	33°C

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bsi. ISO 9001 Quality Management FM 610
ISO 14001 Environmental Management EMS 61113

Safety Data Sheet

Hazardous, NON-Dangerous Goods

1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product name: FOSROC RENDEROC HB

Synonyms	**Product Code**	**Bar Code**
Fosroc Renderoc HB 15KG	FC306095-20KG	9300611623294

Recommended use: Cementitious repair mortar. Applied by trowel or spraying.

Supplier: Parchem Construction Supplies Pty LtdFosroc
ABN: 80 069 961 968
Street Address: 7 Lucca Road
Wyong NSW 2259
Australia
Telephone: (02) 4350 5000

Emergency Telephone number: **Australia – 1800 220 770; New Zealand – 0800 220 770**

2. HAZARDS IDENTIFICATION

This material is hazardous according to the criteria of Safe Work Australia GHS 7.

Signal Word
Danger

Hazard Classifications
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 1
Specific Target Organ Toxicity (Single Exposure) - Category 3 Respiratory Tract Irritation

Hazard Statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Prevention Precautionary Statements

P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P261	Avoid breathing dust, fume, gas, mist, vapours or spray..
P264	Wash hands, face and all exposed skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing including eye/face protection and suitable respirator.

Response Precautionary Statements

P101	If medical advice is needed, have product container or label at hand.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/insert appropriate source of emergency medical advice.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse

Storage Precautionary Statements

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal Precautionary Statement

P501	Dispose of contents/container in accordance with local, regional, national and international regulations.

Poison Schedule: Not Applicable

DANGEROUS GOOD CLASSIFICATION

Not classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO	PROPORTION
Cement, portland, chemicals	65997-15-1	30 - 60 % (w/w)
Calcium oxide	1305-78-8	1 - 10 % (w/w)
Ingredients determined to be non-hazardous or below reporting limits		Balance
		100%

4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre (Phone Australia 131 126, New Zealand 0800 764 766).

Inhalation: Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Skin Contact: If skin or hair contact occurs, immediately remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a Doctor; or for 15 minutes and transport to Doctor or Hospital.

Eye contact: Immediately irrigate with copious quantities of water for 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre.

Ingestion: Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water. Seek medical advice.

PPE for First Aiders: Wear safety shoes, overalls, gloves, safety glasses, dust mask. Available information suggests that gloves made from nitrile rubber should be suitable for intermittent contact. However, due to

variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Notes to physician: Treat symptomatically. Can cause corneal burns.

5. FIRE FIGHTING MEASURES

Hazchem Code: Not applicable.

Suitable extinguishing media: If material is involved in a fire use water fog (or if unavailable fine water spray), alcohol resistant foam, standard foam, dry agent (carbon dioxide, dry chemical powder).

Specific hazards: Non-combustible material.

Fire fighting further advice: Not applicable.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILLS
Wear protective equipment to prevent skin and eye contamination. Avoid inhalation of vapours or dust. Wipe up with absorbent (clean rag or paper towels). Collect and seal in properly labelled containers or drums for disposal.

LARGE SPILLS
Clear area of all unprotected personnel. Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and the inhalation of dust. Work up wind or increase ventilation. Cover with damp absorbent (inert material, sand or soil). Sweep or vacuum up, but avoid generating dust. Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.

Dangerous Goods - Initial Emergency Response Guide No: Not applicable

7. HANDLING AND STORAGE

Handling: Avoid eye contact and skin contact. Avoid inhalation of dust.

Storage: Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Store away from sources of heat and/or ignition. Store locked up. Keep container standing upright. Keep containers closed when not in use - check regularly for spills.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National occupational exposure limits:

	TWA		STEL		NOTICES
	ppm	mg/m3	ppm	mg/m3	
Calcium oxide	-	2	-	-	-
Portland cement	-	10	-	-	-

As published by Safe Work Australia.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) - the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standard. The standard was created for workers who are routinely, potentially exposed during product manufacture.

Biological Limit Values: As per the "National Model Regulations for the Control of Workplace Hazardous Substances (Safe Work Australia)" the ingredients in this material do not have a Biological Limit Allocated.

Engineering Measures: Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Use only in well ventilated areas. Avoid generating and inhaling dusts. Use with local exhaust ventilation or while wearing dust mask.

Personal Protection Equipment: SAFETY SHOES, OVERALLS, GLOVES, SAFETY GLASSES, DUST MASK.

Wear safety shoes, overalls, gloves, safety glasses, dust mask. Available information suggests that gloves made from nitrile rubber should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Hygiene measures: Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Wash hands prior to eating, drinking or smoking. Avoid contact with clothing. Avoid eye contact and skin contact. Avoid inhalation of dust. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Powder
Colour:	Grey
Odour:	Cementitious

Solubility:	Insoluble in water
Specific Gravity:	0.85
Relative Vapour Density (air=1):	N App
Vapour Pressure (20 °C):	N App
Flash Point (°C):	N App
Flammability Limits (%):	N App
Autoignition Temperature (°C):	N App
Melting Point/Range (°C):	N App
Boiling Point/Range (°C):	N App
pH:	N App
Viscosity:	N App
Total VOC (g/Litre):	N Av

(Typical values only - consult specification sheet)
N Av = Not available, N App = Not applicable

10. STABILITY AND REACTIVITY

Chemical stability: This material is thermally stable when stored and used as directed.

Conditions to avoid: Extremes of temperature, sunlight and moisture.

Incompatible materials: Acids, ammonium salts and aluminium.

Hazardous decomposition products: Oxides of aluminium, calcium and silica.

Hazardous reactions: No known hazardous reactions.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Acute Effects

Inhalation: Material is an irritant to mucous membranes and respiratory tract.

Skin contact: Contact with skin will result in irritation.

Ingestion: Swallowing can result in nausea, vomiting and irritation of the gastrointestinal tract.

Eye contact: A severe eye irritant. Corrosive to eyes: contact can cause corneal burns. Contamination of eyes can result in permanent injury. Exposure to the dust may cause discomfort due to particulate nature. May cause physical irritation to the eyes.

Acute toxicity

Inhalation: This material has been classified as not hazardous for acute inhalation exposure. Acute toxicity estimate (based on ingredients): LC_{50} > 5.0 mg/L for dust.

Skin contact: This material has been classified as not hazardous for acute dermal exposure. Acute toxicity estimate (based on ingredients): LD_{50} > 2,000 mg/Kg bw

Ingestion: This material has been classified as not hazardous for acute ingestion exposure. Acute toxicity estimate (based on ingredients): LD_{50} > 2,000 mg/Kg bw

Corrosion/Irritancy: Eye: this material has been classified as a Category 1 Hazard (irreversible effects to eyes). Skin: this material has been classified as a Category 2 Hazard (reversible effects to skin).

Sensitisation: Inhalation: this material has been classified as not a respiratory sensitiser. Skin: this material has been classified as not a skin sensitiser.

Aspiration hazard: This material has been classified as not an aspiration hazard.

Specific target organ toxicity (single exposure): This material has been classified as a Category 3 Hazard. Exposure via inhalation may result in respiratory irritation.

Chronic Toxicity

Mutagenicity: This material has been classified as not a mutagen.

Carcinogenicity: This material has been classified as not a carcinogen.

Reproductive toxicity (including via lactation): This material has been classified as not a reproductive toxicant.

Specific target organ toxicity (repeat exposure): This material has been classified as not a specific hazard to target organs by repeat exposure.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

Acute aquatic hazard: This material has been classified as not hazardous for acute aquatic exposure. Acute toxicity estimate (based on ingredients): > 100 mg/L

Long-term aquatic hazard: This material has been classified as not hazardous for chronic aquatic exposure. Non-rapidly or rapidly degradable substance for which there are adequate chronic toxicity data available OR in the absence of chronic toxicity data, Acute toxicity estimate (based on ingredients): >100 mg/L, where the substance is not rapidly degradable and/or BCF < 500 and/or log K_{ow} < 4.

Ecotoxicity: No information available.

Persistence and degradability: No information available.

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see "Section 8. Exposure Controls and Personal Protection" of this SDS.

If possible material and its container should be recycled. If material or container cannot be recycled, dispose in accordance with local, regional, national and international Regulations.

14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT
Not classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

MARINE TRANSPORT
Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

AIR TRANSPORT
Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

15. REGULATORY INFORMATION

This material is not subject to the following international agreements:
Montreal Protocol (Ozone depleting substances)
The Stockholm Convention (Persistent Organic Pollutants)
The Rotterdam Convention (Prior Informed Consent)

Basel Convention (Hazardous Waste)
International Convention for the Prevention of Pollution from Ships (MARPOL)

This material/constituent(s) is covered by the following requirements:

The Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) established under the Therapeutic Goods Act (Commonwealth): Not Applicable.

AICIS Status: All components of this product are listed on or exempt from the Australian Inventory of Industrial Chemicals (AIIC).

NZ EPA Status: All components of this product are listed on or exempt from the New Zealand Inventory of Chemical (NZIoC).

HSNO Group Standard: HSR002670 - Surface Coatings and Colourants (Subsidiary Hazard) Group Standard 2020

16. OTHER INFORMATION

Reason for issue: Revised

This Safety Data Sheet has been prepared by Chemical Data Services Pty Ltd (chemdata.com.au) on behalf of its client.

Safety Data Sheets are updated frequently. Please ensure that you have a current copy.

This SDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since the company cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use the product in the workplace.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for product as sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.

General-purpose, 'non-shrink' cementitious grout

webercem grout eco

About this product

webercem grout eco is a premixed, non-shrink cementitious grout developed for applications where a cost-efficient grout with adequate flow and strength is required. **webercem grout eco** is designed primarily as a pourable grout but can also be used at a plastic or dry pack consistency.

Complies with BS EN 15604-3 AND -6.

Technical data

Performance to BS EN 1504-3

Performance characteristic	Method	BS EN 1504-3 R4 requirement	Result
Compressive strength	EN 12190	≥ 45 N/mm²	51 N/mm²
Chloride ion content	EN 1015-17	< 0.05%	0.01%
Adhesive bond	EN 1542	≥ 2.0 N/mm²	Pass

Performance to BS EN 1504-6

Performance characteristic	Method	BS EN 1504-6 R4 requirement	Result
Pull out	EN 1881	< 0.6 mm displacement at 75 kN	0.1 mm displacement at 75 kN

Other intended uses

Performance characteristic	Method	BS EN 1504-6 R4 requirement	Result
Freeze/thaw	EN 13687-1	≥ 2.0 N/mm² after 50 cycles	Pass

Uses

- Grouting under stanchions and baseplates
- General void filling, under paving, in rubble walls etc.
- Fixing ballustrades, starter bars and barriers
- Underpinning

Constraints

webercem grout eco must only be used in confined situations, e.g. under baseplates, in holes etc.

Features and benefits

- General purpose grout suitable for use over a temperature range of between 5°C and 25°C.
- Can be pumped, poured, trowelled or 'dry-packed'.
- Good flow properties.
- Can be applied in thicknesses ranging from 10 mm to 100 mm.
- Factory blended to eliminate on-site errors.
- Complies with BS EN 1504-3 and -6.
- Does not contain metallic additives such as iron or aluminium.

construction solutions

webercem grout eco

Preparation

All surfaces should be clean and sound. Concrete surfaces must be free from any contamination including oil, grease, laitance and dust – and for maximum bond the surface should be roughened and pre-soaked with clean water.

Immediately prior to grouting, remove surface water including that in bolt holes or recesses.

Metal surfaces must be free from rust, scale, oil or grease but removable metal shims should be lightly oiled.

Bolt holes must be blown free of dust, water or any loose material.

Formwork should be well sealed to prevent leakage.

Mixing

Mixing and placement can be carried out between +5°C and +25°C. In service, **webercem grout eco** will perform similarly to other cementitious mixes based on Portland cement in the temperature range of –20°C to +150°C.

Mixing should be carried out in a proprietary grout mixer or by using a medium speed drill (650 rpm) with an MR4-type helical attachment.

Do not use more than the maximum stated water adddition.

Water addition

To obtain the consistency appropriate for a particular application, use the water addition detailed opposite.

	Water addition (litres)	**Yield** (litres)
Dry-pack mortar	2.5 to 2.75	13.75
Pourable	3 to 3.4	14
Flowable	3.8 to 4.25	14.5

Application

When pouring, the area to be grouted should be shuttered and a header box used to maintain a grout head of 150 – 200 mm during the pour.

Machine mixing is recommended to achieve continuous pouring. For large applications **webercem grout eco** should be placed by pump, having been formulated to give a 30 minute working time.

Continuous grout flow is essential and sufficient grout and water should be available to be mixed to ensure there is no disruption during placement.

Where the thickness of grout is 100 – 200 mm, the grout may be bulked out with clean, single-sized aggregate by mixing in up to 10 kg of a 6 mm rounded aggregate per 25 kg bag. However, other **Weber** products are available, which may be more suitable. Please contact our Customer Services Department for details.

Avoid leaving unconfined areas of grout proud around bearings etc.

The grout around the edges of baseplates must be finished flush with the sides by cutting the grout while still green after stripping formwork.

Cracking may result in areas where there is no restraint.

Packaging

webercem grout eco is supplied in 25 kg polythene lined bags.

Yield

See *Water addition*.

Storage and shelf life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 12 months from date of manufacture. If stored longer, setting times will increase.

Health and safety

Contains cement (Contains chromium (VI). May produce an allergic reaction). Harmful by inhalation. Irritating to eyes and skin. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical help. After contact with skin, wash immediately with plenty of soap and water. Wear suitable protective clothing, gloves and eye/face protection.

For further information, please request the Material Safety Data Sheet for this product.

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline
Tel: 08703 330 070
e-mail technical@netweber.co.uk

Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. Please contact the relevant Customer Services Team below for all product orders and enquiries.

UK and Ireland
Tel: 08703 330 070
Fax: 0800 014 2995
e-mail customerservice@netweber.co.uk

Saint-Gobain Weber
Dickens House, Enterprise Way, Maulden Road, Flitwick, Bedford MK45 5BY, UK
Tel: 08703 330 070 Fax: 0800 014 2995 e-mail: mail@netweber.co.uk
www.netweber.co.uk

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 02.08.2017 Version number 2 Revision: 16.03.2015

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier
Trade name webercem grout eco

Safety data sheet no.: 44P45965
1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
Application of the substance / the mixture Construction chemicals

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Saint-Gobain Weber
Dickens House
Enterprise Way
Flitwick
Bedford.
MK45 5BY
Tel: +44(0)1525 718877
Web: www.netweber.co.uk
email:sara.kelly@netweber.co.uk
1.4 Emergency telephone number: +44(0) 8703 330070 Office hours only (08.30-17.00 UK time)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Results of in vitro- tests have shown that cement based mixtures with more than 1% of cement cause serious skin irritation and serious eye damage, therefore the classification of these mixtures regarding H315 and H318 is not based on the calculation of the ingredients or the pH in this case.


GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.


GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Hazard pictograms


GHS05 GHS07

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Signal word Danger

Hazard-determining components of labelling:
cement portland, grey
Hazard statements
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Does not contain PBT substances.
vPvB: Does not contain vPvB substances.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures
Description: Mixture: consisting of the following components.

Dangerous components:		
CAS: 65997-15-1 EINECS: 266-043-4	cement portland, grey Eye Dam. 1, H318; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335	25 - 50%

SVHC Void
Additional information
The mixture is "low chromate" according to the Regulation (EC) No 1272/2008 within the product shelf-life, so that the identification with H317 is not applicable, when the packing was not opened in the meantime.
For the wording of the listed hazard phrases refer to section 16.

*

SECTION 4: First aid measures

4.1 Description of first aid measures
General information
Remove the victim immediately from the danger area. If the patient is unwell consult a doctor and present this data sheet.
After inhalation Supply fresh air; consult doctor in case of complaints.
After skin contact Immediately wash with water and soap and rinse thoroughly.
After eye contact
Rinse opened eye for several minutes under running water. Rinse liquid should be tempered (20-30 °C).

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After swallowing If symptoms persist consult a doctor.
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents
CO2, powder or water spray. Fight larger fires with water spray
or alcohol resistant foam.
5.2 Special hazards arising from the substance or mixture
No further relevant information available.
5.3 Advice for firefighters
Protective equipment: No special measures required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Not required.
6.2 Environmental precautions: No special measures required.
6.3 Methods and material for containment and cleaning up: Pick up mechanically.
6.4 Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Provide suction extractors if dust is formed.
Information about fire - and explosion protection: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
Store only in unopened original receptacles.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

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8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace:

PNECs	
65996-69-2 Slags, ferrous metal, blast furnace	
Predicted No Effect Concentration	1000 mg/kgxdwt (earth rating factor)
Predicted No Effect Concentration	500 mg/l (sea water rating factor)
	5000 mg/l (fresh water rating factor)

CAS No. Designation of material	%	Type	Value Unit
65997-15-1 cement portland, grey			
WEL	Long-term value: 10* 4** mg/m³ *inhalable dust **respirable dust		

Additional Occupational Exposure Limit Values for possible hazards during processing:
Quartz alveolar dust (< 5 µm) : 0,15 mg/m³
Additional information:
The applicable TRGS 900 (MAK list) was used as the basis for the preparation and/or revision of this safety data sheet.

8.2 Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Wash hands before breaks and at the end of work.
Respiratory protection: Protective mask type FFP2
Protection of hands: Protective gloves.
Eye protection: Tightly sealed goggles
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information

Appearance:	
Form:	Powder
Colour:	Grey
Odour:	Characteristic
Odour threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
Flash point:	Not applicable
Flammability (solid, gas):	Product is not flammable.
Ignition temperature:	Not determined.
Decomposition temperature:	Not determined.

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Auto-ignition temperature:	Product is not selfigniting.
Explosive properties:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Oxidising properties	Not determined.
Vapour pressure:	Not applicable.
Density:	Not applicable.
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water:	Unsoluble
Segregation coefficient (n-octanol/water) log Pow:	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Solvent content:	
Organic solvents:	0.0 %
EU-VOC	0.00 %
Solids content:	100.0 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability Stable at recommended storage conditions
Thermal decomposition / Conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions No dangerous reactions known
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: No further relevant information available.
10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity Based on available data, the classification criteria are not met.
LD/LC50 values relevant for classification:

Components	Type	Value	Species
65997-15-1 cement portland, grey			
Dermal	LD50	> 2000 mg/kg (Rabbit)	

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65996-69-2 Slags, ferrous metal, blast furnace		
Oral	LD50	> 2000 mg/kg (Rat)
Dermal	LD50	> 4000 mg/kg (Rat)
Inhalative	LC50/4 h	> 5 mg/l (Rat)

Primary irritant effect:
Skin corrosion/irritation
Causes skin irritation.
Serious eye damage/irritation
Causes serious eye damage.
Respiratory or skin sensitisation
May cause an allergic skin reaction.
CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Based on available data, the classification criteria are not met.
Reproductive toxicity Based on available data, the classification criteria are not met.
STOT-single exposure
May cause respiratory irritation.
STOT-repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

Type of test Effective concentration Method Assessment	
65996-69-2 Slags, ferrous metal, blast furnace	
LC50/96h	> 100 mg/l (Leuciscus idus (Orfe))
LC0/96h	>100 mg/l (Leuciscus idus (Orfe))
EC50/72h	> 90 000 mg/l (Algae)
NOEC (72h)	50-100 mg/l (Algae)
NOEC (21d)	1563 mg/l (Daphnia magna)
EC 0/48h	> 100 mg /l (Daphnia magna)

12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
Behaviour in environmental systems:
12.4 Mobility in soil No further relevant information available.
Additional ecological information:

General notes: Do not allow product to reach ground water, water course or sewage system.
12.5 Results of PBT and vPvB assessment
PBT: Does not contain PBT substances.
vPvB: Does not contain vPvB substances.
12.6 Other adverse effects No further relevant information available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods
European waste catalogue
Possible waste code. The concrete waste code depends on the source of the waste.

Uncleaned packaging:
Recommendation:
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

14.1 UN-Number **ADR, ADN, IMDG, IATA**	Void
14.2 UN proper shipping name **ADR, ADN, IMDG, IATA**	Void
14.3 Transport hazard class(es)	
ADR **Class** **ADN/R Class:**	 - (-) Void
IMDG **Class** **Label**	 Void -
14.4 Packing group **ADR, IMDG, IATA**	Void
14.5 Environmental hazards:	Not applicable.
14.6 Special precautions for user **EMS Number:**	Not applicable. -
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
UN "Model Regulation":	Void

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive 2012/18/EU
Named dangerous substances - ANNEX I None of the ingredients is listed.

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15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

*
SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Department issuing SDS: Product safety department.
Contact: Dr S. Kelly; tel. + 44 (0) 1525 718877
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern (REACH regulation)
vPvB: very Persistent and very Bioaccumulative
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
*** Data compared to the previous version altered.**

webercem advanced repair concrete

Flowing recasting repair concrete

- Ideally situated in structural elements where reinforcement is congested
- Rapid strength development, reducing repair time possession
- Complies with BS EN 1504-3 as an R4 repair mortar

webercem ADVANCED

IDEAL FOR HIGHWAYS WORK

SHRINKAGE COMPENSATED

MEETS BS EN 1504-3 AS AN R4 MORTAR

3.1-3.3L

ADD WATER

12.75L

FLOWABLE YIELD

About this product

A pre-blended cementitious repair concrete which complies with the National Highways Specification for Highway Works white book Series 5700 Structural Concrete.

Conformity testing to BS EN 1504-3 has confirmed that **webercem advanced repair concrete** meets the requirements for a Class R4 repair product

Features and benefits

- Permanent structural repair concrete
- Contains non-reactive aggregates and a low soluble alkali cement content
- The repair concrete can be applied to a range of thicknesses, minimum 25mm
- Rapid strength development 35mpa in 3 days thus reducing repair possession times
- Dimensionally stable, forms an integral bond to existing concrete and restores structural integrity with proven durability
- Economical repair
- Variable application thickness providing flexibility of use
- Free-flowing recasting repair concrete allowing formation of intricate falsework
- Ideally suited in structural elements where reinforcement is congested
- Shrinkage-compensated to avoid shrinkage cracks and enhance durability
- Class 4 repair product meeting the requirements of BS EN 1504-3

webercem advanced repair concrete

Uses

- Replacement of concrete to beams and crossheads
- Repair of car parks and buildings
- Coastal structural repairs and seawall reconstruction
- Repairing concrete columns, beams, walls and soffits
- For use under baseplates where thick sections are required to be grouted: 75 to 500mm

Constraints

- Do not apply if frost is forecast within 24 hours of use
- Do not apply in temperatures below 5°C or above 30°C

Preparation

The concrete substrate shall be adequately prepared by suitable methods to remove all defective concrete or suspect concrete by high-pressure water cutting or by mechanical means, i.e breakers, scabbling, grit blasting, etc.

The perimeter of the prepared area shall be well defined by a saw cut, avoid feather edging of the repair concrete.

All concrete shall be removed to give a minimum clear dimension of 20mm to all exposed rebar reinforcement. The extent of the concrete removal shall be agreed with the contract supervisor or engineer.

Steel reinforcement should be prepared in accordance with BS EN 1504-10. Degrease with suitable solvent where appropriate immediately prior to pouring.

No priming of the reinforcement is required, **webercem advanced repair concrete** forms a good cementitious bond to the clean exposed reinforcement. Do not use primers with this product.

Old concrete surfaces contaminated with oil or grease will require cleaning, care must be taken to ensure all contamination and any coating is removed prior to application of concrete.

Grout-tight formwork is essential. Use a light uniform application of release agent and good quality sealed ply formwork. The formwork shall be adequately supported and fixed to resist fluid concrete pressures.

The parent concrete shall be thoroughly saturated with potable water prior to the application of the repair concrete. This may be achieved by filling the formwork with water, usually for 2 hours, then draining off the water and removal of all surplus water

Mixing

Use only freshly opened bags of **webercem advanced repair concrete** and a clean forced action mixer of suitable volume, i.e Daines Mixal mixer, Cretangle pan mixer or a Putzmeister P13 mixer and pump.

Charge the mixer with 3.1 – 3.3 litres of water per 25kg bag, followed by a gradual addition of repair concrete. For optimum flow use 3.3 litres of water. Mix for 3 minutes. Mix only full bags, do not mix part bags.

NB: do not exceed maximum water addition of 3.3 litres water per 25kg bag.

Application

The mixed concrete shall be used within 30 minutes of mixing and kept agitated prior to use.

The mixed concrete can be placed either by gravity pouring or by pumping through hoses at least 50mm diameter. Care shall be exercised to avoid air entrapment during placing. No vibration is needed to compact the repair concrete but the formwork should be tapped with a mallet to release minor air bubbles on the surface of the formwork.

Setting time

Setting time at 20°C is approximately 300 minutes.

Winter working

webercem advanced repair concrete can be used down to 5°C provided cold weather working precautions are carried out. At low temperatures the strength development gain of repair concrete is greatly reduced.

For further information please contact Weber Technical Services

Curing

Immediately after finishing, the exposed surfaces of the concrete shall be cured with wet hessian, polythene or frost blankets for at least 48 hours to prevent rapid loss of water.

The concrete shall then be cured with a high efficiency sprayed-on curing membrane for at least 14 days.

This membrane must be removed if it is to be overcoated, alternatively use wet hessian and tightly fitting polythene sheeting to cure the concrete.

Protect from wind, rain and frost.

Packaging

webercem advanced repair concrete is supplied in 25kg bags.

Coverage

Yield per 25 kg bag is 12.75 litres

Coverage per m^3 volume is 78 bags of **webercem advanced repair concrete**.

Storage and shelf-life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 12 months from date of manufacture.

Health and safety

For further information, please request the Material Safety Data Sheet for this product.

Technical data

EN1504	All tests carried out at max. water addition of 5 litres at 20°C unless otherwise stated			
Performance characteristic	**Method**	**Requirement**	**Result**	**Pass/Fail**
Compressive strength	EN 12190	≥45 MPa	62.2 MPa	Pass
Chloride ion content	EN 1015-17	≤0.05 %	<0.01%	Pass
Adhesive bond	EN 1542	≥2.0 MPa	3.3 MPa	Pass
Carbonation resistance	EN 13295	dk ≤ control concrete (1.3)	dk ≤ control concrete	Pass
Elastic modulus	EN 13412	≥20 GPa	23.0 GPa	Pass
Thermal compatibility Part 1 Freeze-thaw	EN 13687-1	Bond strength after 50 cycles ≥2.0 MPa	3.0 MPa	Pass
Capillary absorption	EN 13057	≤0.5 $kgm^{-2}h^{-0.5}$	0.14 $kgm^{-2}h^{-0.5}$	Pass
Reaction to fire	EN 13501-1	Declared class	Class A1	
Coefficient of thermal expansion	EN 1770	Declared value	$13.6*10^{-6}$	

Additional test data	All tests carried out at max. water addition of 5 litres at 20°C unless otherwise stated			
Performance characteristic	**Method**	**Requirement**	**Result**	**Pass/Fail**
Flow in a trough at 5°C : immediately after mixing	Specification Clause 1770 AR Class 29F	Flow 750mm in 30 seconds	5.9 seconds	Pass
Flow in a trough at 5°C : 30 minutes after mixing			7.1 seconds	Pass
Flow in a trough at 20°C : immediately after mixing			6.3 seconds	Pass
Flow in a trough at 20°C : 30 minutes after mixing			7.5 seconds	Pass
10 Day compressive strength at 5°C	EN 12190	≥29.0 MPa	44.5 MPa	Pass
3 Day compressive strength at 20°C	EN 12190	≥29.0 MPa	47.0 MPa	Pass
7 Day compressive strength at 20°C	EN 12190	≤60.0 MPa	58 MPa	Pass
Air content	BS 1881 1: pt 106	≤7.0%	1.87%	Pass
Cement content	BS 4551	≥400 Kg/m^3	720 Kg/m^3	Pass

Technical data

Additional test data	All tests carried out at max. water addition of 5 litres at 20°C unless otherwise stated	
Performance characteristic	**Method**	**Result**
14 day drying shrinkage	BS 1920-8	0.025%
21 day drying shrinkage		0.040%
28 day drying shrinkage		0.050%

Indicative strength gain	All tests carried out at max. water addition of 5 litres in laboratory conditions			
Temperature	**24 hours**	**3 Days**	**7 Days**	**28 Days**
Compressive strength @ 5°C	0 MPa	20.00 MPa	46.95 MPa	59.47 MPa
Compressive strength @ 10°C	10.50 MPa	27.63 MPa	56.33 MPa	62.13 MPa
Compressive strength @ 20°C	16.70 MPa	34.58 MPa	59.00 MPa	64.75 MPa

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REV. 04/01/23

Safety data sheet
according to 1907/2006/EC, Article 31

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*

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier
Trade name webercem advanced repair concrete

Safety data sheet no.: 44P340846
1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
Application of the substance / the mixture Construction chemicals

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Saint-Gobain Weber
Dickens House
Enterprise Way
Flitwick
Bedfordshire MK45 5BY
Tel.: 01525 718877
webersds@saint-gobain.com
1.4 Emergency telephone number:
UK: NHS 111 (Members of the public)
UK NPIS 24-hour telephone helpline: +44 (0)344 892 0111 (Healthcare professionals only)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Results of in vitro- tests have shown that cement based mixtures with more than 1% of cement cause serious skin irritation and serious eye damage, therefore the classification of these mixtures regarding H315 and H318 is not based on the calculation of the ingredients or the pH in this case.


corrosion

Eye Dam. 1 H318 Causes serious eye damage.

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the GB CLP regulation.
Hazard pictograms



GHS05 GHS07

Signal word Danger

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Hazard-determining components of labelling:
cement portland, grey
aluminum calcium oxide sulfate
Hazard statements
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Does not contain PBT substances.
vPvB: Does not contain vPvB substances.

*
SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures
Description: Mixture consisting of the following components.

Dangerous components:		
CAS: 65997-15-1 EINECS: 266-043-4	cement portland, grey Eye Dam. 1, H318; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Skin Irrit. 2; H315: C ≥ 1 % Eye Dam. 1; H318: C ≥ 1 %	25-50%
CAS: 12005-25-3	aluminum calcium oxide sulfate Skin Sens. 1A, H317	≥0.1-<1%

Additional information
The mixture is "low chromate" according to the Regulation (EC) No 1272/2008 within the product shelf-life, so that the classification with H317 is not applicable, when the packing was not opened in the meantime.
For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures
General information
Remove the victim immediately from the danger area. If the patient is unwell consult a doctor and present this data sheet.
After inhalation Supply fresh air; consult doctor in case of complaints.
After skin contact Generally the product does not irritate the skin.

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After eye contact
Rinse opened eye for several minutes under running water. Rinse liquid should be tempered (20-30°C).
After swallowing If symptoms persist consult a doctor.
4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents
CO2, powder or water spray. Fight larger fires with water spray
or alcohol resistant foam.
5.2 Special hazards arising from the substance or mixture No further relevant information available.
5.3 Advice for firefighters
Protective equipment: No special measures required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Not required.
6.2 Environmental precautions: No special measures required.
6.3 Methods and material for containment and cleaning up: Pick up mechanically.
6.4 Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Provide suction extractors if dust is formed.
Information about fire - and explosion protection: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
Store only in unopened original receptacles.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Additional information about design of technical facilities: No further data; see item 7.

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Ingredients with limit values that require monitoring at the workplace:

CAS No. Designation of material	%	Type	Value Unit
CAS: 65997-15-1 cement portland, grey			
WEL	Long-term value: 10* 4** mg/m³ *inhalable dust **respirable dust		

8.2 Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Wash hands before breaks and at the end of work.
Respiratory protection:
In case of brief exposure or low pollution use respiratory filter device.
In case of intensive or longer exposure use self-contained respiratory protective device.
Protection of hands: Protective gloves.
Eye protection: Tightly sealed goggles
Body protection: Protective work clothing.

*
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Powder
Colour:	Grey
Odour:	Characteristic
Odour threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
Flash point:	Not applicable
Flammability (solid, gas):	Product is not flammable.
Ignition temperature:	Not determined.
Decomposition temperature:	Not determined.
Auto-ignition temperature:	Product is not selfigniting.
Explosive properties:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Oxidising properties	Not determined.
Vapour pressure:	Not applicable.
Density:	Not applicable.

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Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water:	Insoluble
Segregation coefficient (n-octanol/water) log Pow:	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Solvent content:	
Organic solvents:	0.0 %
EU-VOC (%)	0.0000 %
EU-VOC (g/L)	0.0000 g/l
Solids content:	100.0 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability Stable at recommended storage conditions
Thermal decomposition / Conditions to be avoided:
No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions No dangerous reactions known
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: No further relevant information available.
10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity Based on available data, the classification criteria are not met.
LD/LC50 values relevant for classification:

Components	Type	Value	Species
CAS: 1317-65-3 calcium carbonate			
Oral	LD50	>5,000 mg/kg (Rat)	
CAS: 65997-15-1 cement portland, grey			
Dermal	LD50	>2,000 mg/kg (Rabbit)	

Primary irritant effect:
Skin corrosion/irritation
Causes skin irritation.
Serious eye damage/irritation
Causes serious eye damage.
Respiratory or skin sensitisation
May cause an allergic skin reaction.

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Additional toxicological information:
CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Based on available data, the classification criteria are not met.
Reproductive toxicity Based on available data, the classification criteria are not met.
STOT-single exposure
May cause respiratory irritation.
STOT-repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

Type of test	Effective concentration	Method	Assessment
CAS: 1317-65-3 calcium carbonate			
LC50/96h	>10,000 mg/l (Oncorhynchus mykiss (Rainbow trout))		
EC50/48h	>1,000 mg/l (Daphnia magna)		
EC50/72h	>200 mg/l (Algae)		

12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Additional ecological information:

General notes: Do not allow product to reach ground water, water course or sewage system.
12.5 Results of PBT and vPvB assessment
PBT: Does not contain PBT substances.
vPvB: Does not contain vPvB substances.
12.6 Other adverse effects No further relevant information available.

*

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number	
ADR, ADN, IMDG, IATA	Void
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	Void
14.3 Transport hazard class(es)	
ADR	
Class	- (-)

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ADN/R Class:	Void
IMDG **Class** **Label**	 Void -
14.4 Packing group **ADR, IMDG, IATA**	 Void
14.5 Environmental hazards:	Not applicable.
14.6 Special precautions for user **EMS Number:**	Not applicable. -
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
Transport/Additional information:	Not dangerous according to the above specifications.
UN "Model Regulation":	Void

*
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
"Control of Substances Hazardous to Health" UK Regulations 2002 (as amended)
Regulation (EC) No 1907/2006 (UK REACH) (Candidate List, Annexes XIV and XVII)
Regulation (EC) No 1272/2008 (GB CLP)

Directive 2012/18/EU
Named dangerous substances - ANNEX I None of the ingredients is listed.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Department issuing SDS: EHS
Contact:
webersds
01525718877
webersds@saint-gobain.com
Abbreviations and acronyms:
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

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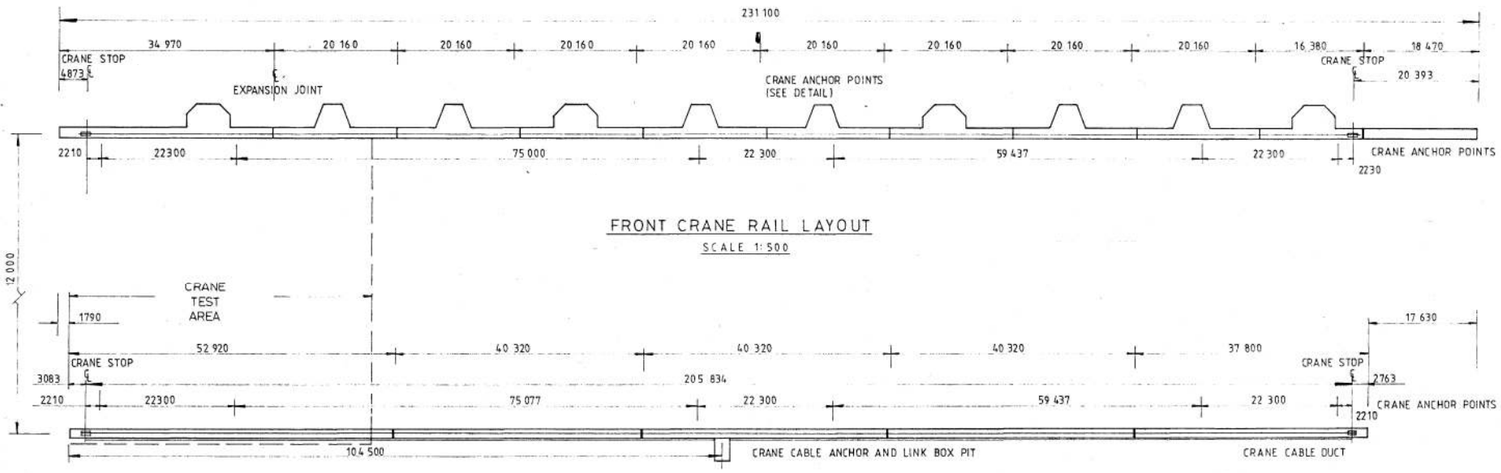
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1A: Skin sensitisation – Category 1A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

*** Data compared to the previous version altered.**

According to Annex II of the UK REACH regulation, the modified sections in this version of the Safety Data Sheet in comparison with the previous one are marked with asterisks.

Appendix C:
Drawing 5716-1012 Provided by
Nuclear Transport Solutions

Appendices

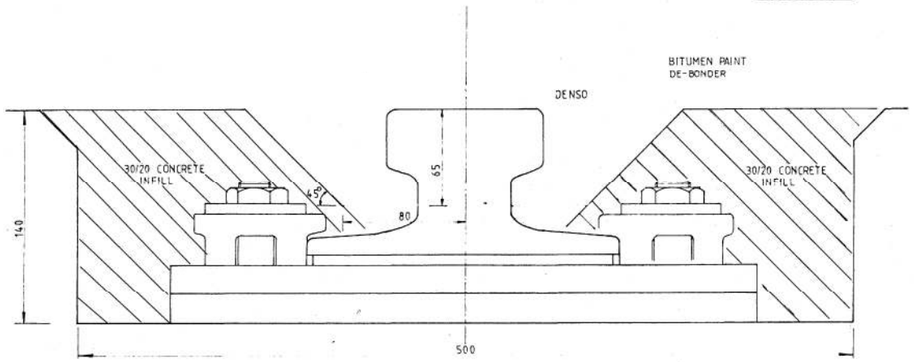


FRONT CRANE RAIL LAYOUT

SCALE 1:500

REAR CRANE RAIL LAYOUT

SCALE 1:500



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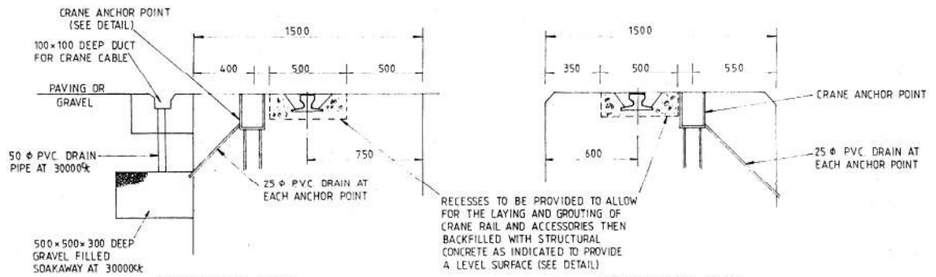
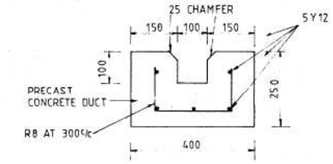


REAR CRANE BEAM

FRONT CRANE BEAM

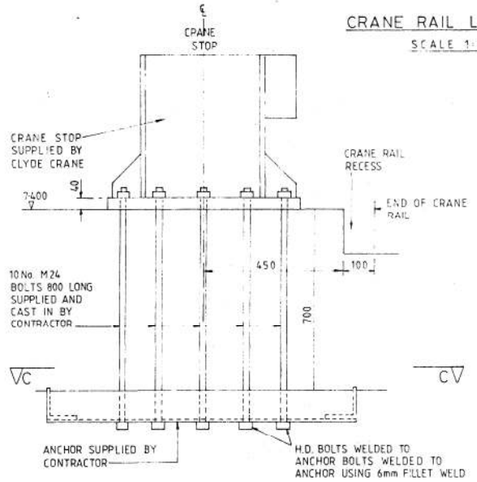
CRANE RAIL LOCATION

SCALE 1:20



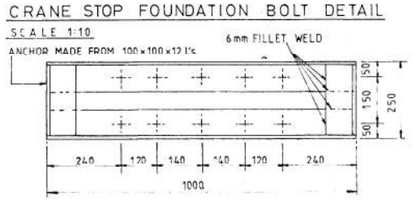
SECTION THROUGH CRANE
CABLE DUCT

SCALE 1:10



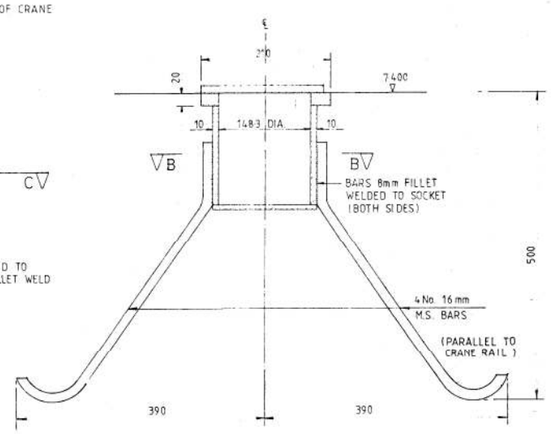
CRANE STOP FOUNDATION BOLT DETAIL

SCALE 1:10



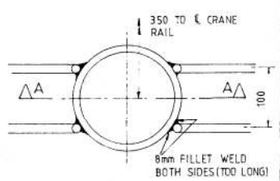
SECTION C-C

SCALE 1:10



SECTION A-A

SCALE 1:5

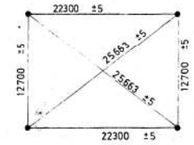


SECTION B-B

SCALE 1:5

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE CRANE RAIL AND FIXINGS ARE TO DIN 536.
3. ALL WELD SYMBOLS ARE TO B.S.449 AND ALL WELD PREPARATIONS TO B.S.5135.
4. ADEQUATE TESTING AND INSPECTION SHALL BE CARRIED OUT ON A TRIAL SECTION OF RAIL TO ENSURE THE METHOD ADOPTED TO GROUT THE CRANE RAIL BASE PLATE WILL PROVIDE A FULL BEARING SURFACE.
5. BASE PLATES TO BE SUPPLIED IN APPROVED LENGTHS (MIN. 4000mm.).
6. CRANE CABLE DUCT TO BE PRECAST CONCRETE. CONCRETE GRADE 30/20.
7. CRANE RAIL SETTING OUT TOLERANCES.
   RAIL CENTRES ±6mm.
   LEVELNESS OF RAILS ±3mm. IN 30m.
   MAXIMUM PERMISSIBLE DIFFERENCE IN RAIL LEVEL OVER COMPLETE TRACK ±6mm.
   STRAIGHTNESS OF RAILS ±3mm. IN 30m. (ON PLAN).
8. ANCHOR POINT SETTING OUT TOLERANCES.



9. FOR CRANE RAIL TRACK DETAILS SEE MOLYNUEX DRAWINGS 5716/1051,1052.

AS MADE

CONTRACTOR	HARBOUR AND GENERAL WORKS (STEVIN) LIMITED
CONTRACTOR'S DRAWING No.	
SUB-CONTRACTOR	MOLYNEUX
SUB-CONTRACTOR'S DRAWING No.	
INSPECTOR'S SIGNATURE	DATE

BRITISH NUCLEAR FUELS LTD.
RAMSDEN DOCK SEA TERMINAL
BARROW-IN-FURNESS

CONTRACT H62209
CIVIL ENGINEERING WORKS

CRANE RAIL LAYOUT AND FIXING DETAILS

SIR BRUCE WHITE WOLFE BARRY AND PARTNERS

Drawn	Date	DRAWING No.
		5716/1012
Checked SBG	Scale AS SHOWN	

Appendix D:

Bill Of Quantities

Appendices

Item	Description	Quanitiy	Unit	Rate £	Amount £
	The quantities contained in this document are based on visible defects at the time of survey. All works will be subjected to re-measure on completion of contract.				
2.0	**Specific requirements** Water for works: Available via NTS Electricity for works: Available via NTS Site office and welfare facilities: Available via NTS Storage facilities: Available via NTS **Sub-Total**				**£0.00**
3.0	**Materials** *Use either Fosroc OR Saint-Gobain Weber system* Fosroc - Nitoprome Zincrich Plus Fosroc - Renderoc GP Fosroc - Renderoc HB Saint-Gobain Weber - webercem grout eco Saint-Gobain Weber - webercem advanced repair concrete **Sub-Total**	 20 50 50 50 50	 Tins 25kg Bags 18kg Bags 25kg Bags 25kg Bags		 £0.00 £0.00 £0.00 £0.00 £0.00 **£0.00**
5.2	**Unblocking Existing Dock Crane Rail Drainage** Number of drainage channels Dock-side Crane Rail trough Number of drainage channels Land-side Crane Rail trough **Sub-Total**	 9 4	 № №		 £0.00 £0.00 **£0.00**
5.3	**Removal of Existing Dock Crane Rail Trough Infill Concrete** Length of Dock-side Crane rail trough = 205.777m Length of Land-side Crane rail trough = 205.834m **Sub-Total**		 days days		 £0.00 £0.00 **£0.00**

5.4	**Preparation of In-situ Dock Crane Rail**				
	Fosroc - Nitoprome Zincrich Plus				
	Length of Dock-side Crane rail = 205.777m		days		£0.00
	Length of Land-side Crane rail = 205.834m		days		£0.00
	Sub-Total				**£0.00**
5.5	**Preparation of In-situ Dock Crane-Rail Pile-Cap Slab (Substrate) Concrete Patch Areas if required**				
	Length of Dock Crane rail trough = <1m length patch	1	Each		£0.00
	Length of Dock Crane rail trough = 1 - 2m length patch	1	Each		£0.00
	Length of Dock Crane rail trough = 2 - 3m length patch	1	Each		£0.00
	Length of Dock Crane rail trough = 3 - 5m length patch	1	Each		£0.00
	Sub-Total				**£0.00**
			Quantity to be determined during works		
5.6	**Reinstatement of Dock Crane Rail Trough Infill (Replacement) Concrete**				
	Length of Dock-side Crane rail trough = 205.777m		days		£0.00
	Length of Land-side Crane rail trough = 205.834m		days		£0.00
	Sub-Total				**£0.00**
	COLLECTION SUMMARY				
1.0	**General**				
2.0	**Specific requirements**				
3.0	**Materials**				**£0.00**
5.2	**Unblocking Existing Dock Crane Rail Drainage**				**£0.00**
5.3	**Removal of Existing Dock Crane Rail Trough Infill Concrete**				**£0.00**
5.4	**Preparation of In-situ Dock Crane Rail**				**£0.00**
5.5	**Preparation of In-situ Dock Crane-Rail Pile-Cap Slab (Substrate) Concrete Patch Areas if required**				**£0.00**
5.6	**Reinstatement of Dock Crane Rail Trough Infill (Replacement) Concrete**				**£0.00**
	TOTAL				**£0.00**
	ADD CONTINGENCY SUM OF 7.5% OF TOTAL				**£0.00**
	GRAND TOTAL				**£0.00**

Dynamic Risk Assessment			
Title:		Date of works:	
Company:		R.A. No:	
Project Name:		Revision:	
Detail of works:			
Risks:			
Precautions:			
Print Name:		Signed:	
Print:		Date:	
Signed:			