

REPCON SR-94

MICRO-CONCRETE



DESCRIPTION

REPCON SR-94 is a single component, freeflowing microconcrete extensively used in areas where reinforcement is heavily congested and access to place trowel applied mortar is limited. It is composed of Portland cement, graded aggregates and additives which impart controlled expansion in both the plastic and hardened states. It is ideally suited for bridge repairs. It is highly fluid in nature and can be pumped into the formwork, eliminating the need for compaction and vibration.

FEATURES / BENEFITS

- Single component material – ready to use with only the addition of water at site.
- Can be pumped or poured into the formwork. water is required.
- Self – compacting in nature, which eliminates the need for compaction and vibration.
- Has high strength and low permeability making it suitable for use in areas where excellent chloride and carbondioxide resistance is required.
- Contains no chloride admixtures.
- Contains low alkali minimizing the risk of alkali-silica reactions.
- Full encapsulation of the heavily congested steel is achievable.

BASIC USES

- Bridge structures
- Columns, walls and beams
- Dams
- Retaining walls
- All areas where reinforcement is heavily congested and access to place trowel
- Large volume concrete repairs at thickness ranging from a minimum of 40mm to a maximum of 200mm. Filling deeper sections depend on the profile of concrete surface. applied mortar is limited
- Refilling pile-caps

TECHNICAL INFORMATION

Typical Engineering Data:

Properties	Typical Result	Test Method
Compressive Strength @ 23°C	1 day, 34 MPa 7 days, 48 MPa 28 days, 66MPa	ASTM C 109/ C109M-20b
Flow Properties	650mm	DOT 8 D237 Flow
Setting Time @ 23°C	Initial Set: 4hours & 30 mins Final Set: 7 hours	ASTM C 191-19
Modulus of Elasticity	3.41 x 10 ⁴ MPa	-
Chloride Permeability	Very Low @ 28 days	ASTM C 172-17 AASHTO T 27 7 <300 Coulomb
Coefficient of Thermal Expansion @ 21°C	9.9 x10 ⁻⁶ /°C	ASTM C 531-18
Linear Shrinkage	-0.013	ASTM C 531-18
Flexural Strength @ 23°C	28 days, 7MPa	ASTM C 78/ C78M-18
Slant Shear Bond Strength	28 days ,36MPa	ASTM C 882/ C882M-20
Alkali content	The calculated equivalent sodium oxide content or REPCON SR94 is approximately 2.5 kg/m ³	
Fresh Wet Density	≈ 2350 kg/m ³ depending on actual consistency used	
Chemical Resistance	Excellent	

COVERAGE	COVERAGE When mixed with 3.5 liters of water, one bag of REPCON SR-94 yields approximately 12 liters of material.
PACKAGING	REPCON SR-94 is packed in 25 kg bags.

DIRECTIONS FOR USE

Surface Preparation

New concrete must be 28 days old if epoxy adhesive is used to bond the **REPCON SR-94**. If water soaking is to be employed for priming, the concrete must be a minimum 3 days old. The concrete must be clean and rough. All oil, dirt, debris, paint and unsound concrete must be removed. The surface must be prepared mechanically using a scabber, bushhammer, shotblast or scarifier which will give a surface profile of a minimum 3 mm and expose the large aggregate of the concrete. The final step in cleaning should be the complete removal of all residue with a vacuum cleaner or pressure washer.

Edges

Edges should be sawcut to a depth of at least 10 mm to avoid featheredging and to provide a square edge

Exposed Reinforcement Steel

Exposed rebar may be treated with an anti-corrosion coating such as EPO CHEM, ZINC RICH PRIMER or EPO-MORT 1000 LV epoxy. Remove all loose rust and scaling, preferably by sandblasting to white metal prior to coating the rebar. Sandblasting must be done carefully by paying attention to the back of exposed steel bars. In certain instances of repairs, the corroded steel may have to be replaced in consultation with the Structural Engineer

Formwork

Determine the work schedule and method of placing **REPCON SR-94**, then prepare rigid and tight formwork to prevent loss of material. The formwork should have properly sealed faces to ensure that no water is absorbed from the repair material. The formwork should include drainage outlets for presoaking and, if beneath a soffit, provision for air venting. Care should be taken to ensure that formwork is watertight and constructed

in line with normal concreting practice. The unrestrained surface of the repair should be kept to a minimum and care should be taken to ensure at least 20 mm cover to reinforcement. Suitable access points must be provided in the formwork to pour or pump the mixed microconcrete into place

Substrate Priming

Substrate has to be soaked in water for several hours prior to the application of **REPCON SR-94**, to minimize local absorption and to assist in the free flow of **REPCON SR-94**. Before placing **REPCON SR-94**, ensure that concrete surfaces are uniformly damp but free of standing water and seal drainage outlets

In exceptional circumstances, e.g., where a substrate/repair barrier is required, **EPO PRIME LP** epoxy adhesive should be used in consultation with the local C.M.C.I office. If deleterious salts such as chlorides or sulphates are present in the parent concrete, **EPO PRIME LP** is recommended as it prevents the migration of such deleterious salts into the **REPCON SR-94**, **EPO PRIME LP** aids in bonding of parent concrete & **REPCON SR-94**. When **EPO PRIME LP** is used presoaking is not necessary but care should be taken to ensure formwork is erected and **REPCON SR-94** is placed within the tackfree time of **EPO PRIME LP**.

Mixing

since **REPCON SR-94** is a precision concrete, care should be taken to ensure that it is thoroughly mixed and placed as per the manufacturer's instructions. It is essential that a mechanically powered mixer is used. Damp down the inside of the mixer with water prior to mixing the initial batch of **REPCON SR-94**. Mixer should be damp but free from standing water. Machine mixing capacity and labour availability should be adequate for carrying out the placing operation continuously. Measure 3.5 liters of drinking quality water and pour three-quarters into the mixer. With the machine in operation, add one full 25-kg bag of **REPCON SR-94** and mix for one minute before adding the rest of water. Mix for a further 2 to 3 minutes until a smooth even consistency is obtained. Note that powder must always be added to water and not vice-versa.

Placing

It is essential to place the mixed material within 30 minutes of mixing in order to gain the full benefit of fluidity and of the expansion process. Standard concrete pumping practice should be followed for pumping **REPCON SR-94**. The pump and pipeline must be 'grouted' with a rich cement slurry or mortar, discharging the 'grout' as waste. Pumping should be commenced immediately after 'grouting' in this way. If placing this product in hot weather, use of cold water will increase the working time.

Placing

As with all cementitious products, proper curing procedures are important to ensure the durability and quality of the structure. To prevent surface cracking, cure with high solids curing compound such as **KURECOTE 75 VOX XP** or **CEMTEC KUREN SEAL XP**. In hot, windy or direct sunlight situations, cover with polyethylene for a minimum of three (3) days. Curing compound must be ordered separately

CLEAN-UP

REPCON SR-94 should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically. Equipment used with **ZINC RICH PRIMER** and curing compounds should be cleaned with **CEMTEC SOLVENT** before the material had hardened.

PRECAUTIONS/LIMITATIONS:

- Wear suitable protective clothing, safety goggles, gloves and respiratory protective equipment to avoid inhalation and contact with eyes and skin.
- In case of contact with eyes/skin, wash with plenty of clean water and seek medical advice.
- In adverse temperatures, follow ACI recommendations for hot/cold weather concreting practices.
- Use only potable water for mixing.
- Do not use material at temperatures below

TSS/TDS/290821-B

Quality Statement

CMCI manufactures its products at their manufacturing facility in Saudi Arabia as per the Quality Procedures certified to conform with quality Management System described in ISO 9000 series

CMCI provides a comprehensive technical support system for its full range of high performance construction products CMCI also offers full technical field support to consultants, Architects, contractors, applicators and End Users.

The Technical Specification information and recommendations given are based on the current technical knowledge and the user or his representative is recommended to check the suitability of the product CMCI reserves the right to amend the technical characteristic of the product as part of ongoing research and development. As the work execution is beyond the direct and continuous control of CMCI no guaranty and or responsibility is assumed on the performance of work completion executed with use of our products.

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