



The Chemical Company

# EMACO<sup>®</sup> S103 CP

## Pre-Mixed, Non-Reactive, Low Alkali, Shrinkage Compensated Flowable Replacement Concrete. Suitable for Cathodic Protection

### Description of Product

EMACO<sup>®</sup> S103 CP is a blend of Portland Cements and ground granulated blast furnace slag, to BS12 and BS6699 respectively, non reactive high grade limestone aggregates and additives which impart controlled expansion in the plastic and hardened states whilst providing maximum workability with minimum water demand.

It is non oxidising and does not contain chlorides, nitrates or other added accelerating chemicals.

EMACO<sup>®</sup> S103 CP complies with Department of Transport Model Specification BD 27/86 Pt. 3 and 4: and the Department of Transport Specification for Highway Works, Series 1700 (Repair Concrete, Clause 1770 AR, 1999 class 29F.)

It is supplied ready to use requiring only the addition of potable water to produce a shrinkage compensating, free flowing concrete suitable for placing in nominal thickness' in excess of 25mm.

Basf Concrete Repair System products are manufactured under procedures independently accredited to BS EN ISO 9001 (International Standard).

### Fields of Application

- To replace damaged, defective or deteriorated concrete.
- Situations where a self compacting flowable shrinkage compensating concrete would be used due to restricted access, steel congestion etc.
- Repair of Highway Structures to DoT specification
- Use in conjunction with Cathodic Protection Systems

### Features and Benefits

- Non- reactive aggregate and low sodium oxide content- complies with DoT requirements.
- Low resistivity, suitable for Cathodic Protection
- Shrinkage compensated in both plastic and hardened state.
- Good durability due to low water/cement ratio, high ultimate strength and low permeability.
- Excellent workability.
- Cohesive mix with no segregation.

### Technical Data/Typical Properties

Appearance	White granular powder	
Maximum aggregate size	4mm	
Plastic density	2280 kg/m <sup>3</sup>	
Set time	Initial set	3 hours 30 mins @20°C
	Final set	5 hours @ 20°C
Working time	45 – 60 minutes	
Water/Cement Ratio	0.44	
Flow DTP Trough		
Time to reach 750 mm	5°C	20°C
After mixing	15 secs	14 secs
After 30 minutes	20 secs	17 secs
Flow simulated soffit and top repair	Complies with DoT specification	
Compressive strength		
BS1881 Pt. 108 N/mm <sup>2</sup>	5°C	20°C
1 day	N/A	20
3 days	N/A	34
7 days	N/A	49
10 days	43	
Cement content kg/m <sup>3</sup>	640	
Air content %	Approximately 4.5%	
Electrical Resistivity @ 28 days ohm.cm	6,500	
Chloride in content %	<0.1%	
Alkali content	Max 3.0 kg/m <sup>3</sup>	
Sulphate content	Complies with clause 1704.5	
Expansion	0.2% @ 24 hours	

### Application Procedure

#### Preparation of Substrate

All surfaces in contact with the EMACO<sup>®</sup> S103 CP should be sound, dense and clean. All laitance and unsound material must be removed. To ensure a sound, uniform edge to the repair it is recommended to saw cut the edges to a minimum depth of 15mm.



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### Steel Reinforcement

Reinforcement should have all traces of rust removed by the use of power tools, abrasive blasting or water jetting, taking care to ensure that the full circumference is cleaned. (SA2½ of Swedish Standard SIS 05-900:1967 or BS4232 ref. 24 Second Quality refer).

**Concrete.** Priming is not required but it is essential to pre-soak the repair area before application of EMACO® S103 CP.

### Formwork

Should be sound and watertight. Use a light application of RHEOFINISH® Chemical Release Agent to the face of the formwork. When repairs are to be carried out on undersides of soffits provisions must be made for draining of pre-soaking water and air venting during placement.

### Mixing

The EMACO® S103 CP must be mixed in a forced action paddle mixer (e.g. Cretangle etc.) to ensure a homogeneous mix. The mixing water should be accurately measured into the mixer and with the mixer running, the contents of the bag should be added and mixed for a minimum of three minutes to achieve a smooth consistency.

It is essential that machine capacity and labour availability is adequate to enable the placing operation to be carried out continuously.

### Placing

EMACO® S103 CP should be placed as soon as possible after mixing and within 30 minutes to gain the full benefit of the expansion process in the plastic state. It is recommended if placing by pump that standard concrete pumping practices should be observed.

### Coverage

The yield from one 25kg bag of EMACO® S103 CP at flowable consistency (3.075 litres added water) is 0.0123 cubic metres (12.3 litres).

### Curing/After Treatment

Good curing practice is essential. Particular care is required in hot or windy conditions. Curing can be by the application of a single coat of MASTERKURE® 181 curing membrane which is compatible with most subsequent protective coatings, or by covering the work with a properly secured plastic sheeting.

### Cleaning

Treat as normal concrete and clean all tools and equipment with water immediately after use.

### Packaging

EMACO® S103 CP is supplied in 25kg bags.

### Storage

Store as cement in cool, dry conditions.

### Shelf Life

Minimum 12 months when stored as recommended in unopened containers.

### Watchpoints

**Cold weather work:** placing should not take place at temperatures below 5°C.

At temperatures below 8°C it is essential to heat and warm the area prior to starting work and subsequently maintain the concrete at a minimum 8°C.

Warm water may be used to a maximum 25°C temperature.

**Hot weather work:** keep all ingredients protected from the sun. Use cold water with added ice if necessary.

Proper curing is essential.

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#### **Health and Safety**

\*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

#### **Solvent Based Products**

Use in well ventilated areas; avoid inhaling. Suitable respiratory equipment may be needed, eg when spraying. Can cause skin, eye irritation. Wear protective eye shields and gloves during use. Do not smoke or allow sparks or naked lights when stored or in use.

#### **Powder Products**

Should be handled to minimise dust formation; use light mask if excessive dust unavoidable. Cement powders when wet or moistened can cause burns to skin and eyes which should be protected during use.

#### **Resin Products**

Can cause irritation, dermatitis or allergic reaction. Use protective equipment particularly for skin and eyes. Use only in well ventilated areas.

#### **Spillage**

Chemical products can cause damage; clean spillage immediately.

#### **Disclaimer:**

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