



# Cemtop 400SD

## Cement based, self levelling, industrial floor surfacing system - 3mm to 12mm

### Uses

Cemtop 400SD is designed as a thin layer industrial wearing course for use in areas that are subjected to both foot and forklift traffic. Typical uses are for reinstatement of existing floors or as a final wearing course on new concrete floors where specified floor tolerances have not been achieved or where, for speed of installation, the concrete floor has been left with a tamped finish.

It is suitable for use across a wide range of industrial environments, such as:

- Warehouses
- Light to medium engineering operations
- Car parks

### Advantages

- **Rapid application/installation** - very fast application enables large areas to be installed in a working day.
- **Rapid strength gain and curing** - allows speedy access and minimises disruption and downtime.
- **Economic** - more cost effective than equivalent resin based systems.
- **Simple installation** - eliminates time consuming and labour intensive sand cement screeds.
- **Stable** - can be installed in large jointless areas.
- **Versatile** - can be applied on floors subject to rising damp.
- **Consistent performance** - single pack eliminates need for site batching and ensures consistency of mixed product.
- **Self levelling** - minimal finishing required.

### Description

Cemtop 400SD is a blend of selected cements, hard-wearing graded aggregates modified with polymers and flow agents. It is supplied as a dry, grey powder which requires only the addition of water to produce a self smoothing, free flowing material.

Cemtop 400SD may be applied by hand or by use of a continuous mixer pump.

### Properties

The following results have been derived under laboratory conditions, and may vary slightly from those achieved on site:

Flow at 27°C	: Initial - 26 - 30 cm @ 10mm - min. 25 cm
Compressive strength (40 mm cubes cured at 35°C)	: 20 N/mm <sup>2</sup> @ 1day 35 N/mm <sup>2</sup> @ 28 days
Flexural strength (Rectangular prisms cured at 20°C and 65% RH)	: 9 N/mm <sup>2</sup> at 28 days
BRE Impact Resistance BS 8204:Part 1:1987	: Class A at 28 days Highest rating
Minimum thickness	: 3 mm
Maximum thickness	: 12 mm
Traffic time @ 20-30°C	:
Foot traffic	2-4 hours
Light traffic	24 hours
Heavy traffic <sup>1</sup>	7 days

Note : Excessive loading should be avoided for 7 days after application.

### Specification

Floor areas so designed should be covered with Cemtop 400SD manufactured by Fosroc. The product shall achieve a compressive strength of not less than 20 N/mm<sup>2</sup> at 1 day and not less than 35 N/mm<sup>2</sup> at 28 days plus a minimum flexural strength of 9N/mm<sup>2</sup> at 28 days when tested to Fosroc approved test methods. It should also achieve an "A" rating for the BRE (BS8204) test for Impact Resistance. The floor shall be prepared with the manufacturer's current data sheets.

### Design criteria

- Cemtop 400SD is designed for application to concrete substrates and sound sand-cement screeds at a minimum thickness of 3mm to a maximum thickness of 12mm.
- The substrate should have either a compressive strength of 25 N/mm<sup>2</sup> or a surface tensile strength in excess of 1.25 N/mm<sup>2</sup> and a relative humidity not exceeding 75% at the time of installation. The relative humidity must not be greater than 80% if a Nitoflor resin based coating is applied. Cracks and holes should be repaired with recommended Fosroc products.
- When installed, the product will follow the existing floor gradient. If a floor with a particular slope is required it will be

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necessary to use levelling equipment to obtain the desired gradient.

New concrete floors should be at least 21 days old, prior to application of Cemtop 400SD.

- The substrate onto which the Cemtop 400SD is to be applied must be generally clean, sound and free from oil, grease and other contaminants.
- Consult local Fosroc office for suitability of other floor substrates and floor repair products.

## Instructions for use

### Surface preparation

#### New concrete floors

These should normally have been placed for at least 21 days and have a moisture content of less than 5%. Floors should be sound and free from contamination such as oil and grease, mortar and paint splashes or curing compound residues. Excessive laitance can be removed by light mechanical scabbling, grinding or grit blasting followed by thorough washing with clean water, vacuum cleaning and allowing the surface to dry. Light laitance can be removed by grinding or blasting followed by vacuum cleaning to remove dust debris. Light oil and grease staining can be removed with degreasers followed by washing with clean water.

#### Old concrete floors

Where deep seated contamination has occurred, mechanical methods such as blasting, grinding or scabbling should be used to provide a suitable clean surface.

Any necessary repairs should be carried out using Renderoc SXtra\*\* or Renderoc FC\*\*.

#### Priming

The substrate should be thoroughly prepared as detailed above.

The substrate should be presoaked with clean water for 4 hours immediately prior to application of Nitoprime 33\*. Before proceeding with the application of Nitoprime 33, the surface should be in a saturated surface dry condition, with no free standing water.

The objective of priming the substrate is to 'seal' it, and thereby

prevent release of air, rising from the substrate, and thus forming bubbles or pinholes in the surface of the Cemtop 400SD. Additionally it aids adhesion between the two surfaces.

The substrate must be primed using Nitoprime 33 (1:5; primer to potable water ratio by volume) and allowed to dry. The primer should be brushed into the floor by broom. Spray or roller application is not recommended as insufficient material will be applied.

When the first coat of the primer is touch dry, a second coat of Nitoprime 33 (1:3; primer to potable water ratio by volume) should be applied to the substrate in the similar manner. For highly porous substrates, a third coat of the primer may be applied with Nitoprime 33 diluted at a ratio of 1:3.

Ponding of primer must be avoided as this can lead to failure at the bond line.

#### Installation by hand

Areas smaller than 50m<sup>2</sup>

#### Mixing

Only full bag mixing is permissible. Do **not** part mix, or add further water to the mixed material in order to prolong workability. Either of these actions will result in an incorrect water:powder ratio, and will compromise the final material performance.

It is essential that Cemtop 400SD is thoroughly mixed and that the temperature of the mixed material should not be allowed to exceed 30°C.

Measure out 3.8 litres of cool, potable water, into a suitably sized mixing vessel and mix a full bag of Cemtop 400SD. It is suggested that the temperature of the water should not exceed 20°C, so that the temperature of the final mixed mortar is not greater than 30°C.

Always add the powder to the water. Mix for 3 to 5 minutes until fully homogenous, using a 1 KW, slow speed drill (400 to 500 rpm) fitted to a Fosroc Mixing Paddle (MR3) attachment.

#### Application

Pour the mixed material, immediately upon completion of mixing, on to the dry, primed surface, spread with a trowel and allow to 'self-level'.

Roll the surface with a spiked roller to promote the release of any trapped air. Rolling should be done immediately after



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placement of the material. Do not over roll and do not attempt to float finish the setting surface.

The required thickness must be achieved in one application. For best results, the pouring and levelling should be a continuous process.

**Note:** If the mix stiffens, it should be discarded. **Do not** attempt to re-mix with water.

## Installation by pump

This is a highly specialised activity and requires the use of an approved applicator, who has been fully trained in the use of product and equipment, supplied by Fosroc.

## Expansion joints

Expansion joints in the existing substrate must be retained and continued through the Cemtop 400SD. Fosroc has a range of joint sealants specifically designed for flooring, consult your local Fosroc office for more details.

## Cleaning

Tools and equipment should be cleaned immediately by flushing with water. Cured material can only be removed by mechanical means.

## Curing

In normal conditions, Cemtop 400SD does not require curing, but in harsh climatic conditions of direct sunlight, drying winds etc., freshly hardened surfaces should be covered completely with a polythene sheet for 2 days.

## Coating

In areas that are subject to regular water immersion or chemical attack from acids or organic solvent, it will be appropriate to protect Cemtop 400SD with an epoxy floor coating such as Nitoflor FC130\*\* or Nitoflor FC140\*\*.

The first coat of the epoxy floor coating should be applied within 2-6 hours of installation of Cemtop 400SD and the second coat should be applied after the first coat is dry, typically 12-18 hours. In areas where high chemical resistance is required, the first coat shall be Nitoflor FC130 with the second coat being Nitoflor FC140.

## Maintenance

Where Cemtop 400SD has not been overcoated, it may be cleaned with a proprietary rotary scrubbing machines. It should not be cleaned with strong alkaline based cleaning agents.

If Cemtop 400SD has been overcoated with any of the Nitoflor range of resin floor coatings, contact your local Fosroc office for cleaning procedures.

## Hot weather working

It is suggested that, for temperatures above 35°C, the following guidelines are adopted as good working practice:

- (i) Store unmixed materials in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.
- (ii) Keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself.
- (iii) Try to avoid application during the hottest times of the day.
- (iv) Make sufficient material, plant and labour available to ensure that application is a continuous process.

## Limitations

- Concrete slabs onto which Cemtop 400SD is to be applied must have a surface temperature of at least 5°C, with the air temperature maintained at 10°C, or more, during application.
- For temperatures above 35°C refer to “Hot Weather Working”.
- Prevent freezing of Cemtop 400SD for 48 hours from placement.
- Cemtop 400SD should not be applied to asphalt substrates.
- If the substrate onto which Cemtop 400SD is applied moves or cracks, reflective cracking may occur.
- Only suitable for use out of direct sunlight and/or drying winds during application and initial curing period

## Technical support

Fosroc offers a comprehensive technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

## Estimating

### Supply

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Cemtop 400SD	: 20 kg bags
Nitoprime 33 concentrate	: 25 L containers

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## Coverage

Cemtop 400SD	: 11.8 L per 20kg bag
Nitoprime 33 concentrate	: 5m <sup>2</sup> /L per 2 coats 3m <sup>2</sup> /L per 3 coats

**Note:** Coverage figures given are theoretical - due to wastage factors and the variety and nature of substrates, practical coverage figures may be reduced, this will vary with site and application conditions.

## Storage

### Shelf life

Cemtop 400SD has a shelf life of 6 months and Nitoprime 33 has a shelf life of 12 months, when stored in warehouse conditions below 20°C in the original, unopened packs.

## Precautions

### Health and safety

Cemtop 400SD contains certain powders which, when mixed with water or become damp, release alkalis which can be harmful to the skin.

During use, avoid inhalation of the dust and contact with the skin or eyes. Wear suitable protective clothing - eye protection, gloves and respiratory equipment (particularly in confined spaces).

The use of barrier creams to provide additional skin protection is also advised. In case of contact with the skin, rinse with plenty of clean water, then cleanse thoroughly with soap and water.

In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed seek medical attention immediately - do **not** induce vomiting.

### Fire

Cemtop 400SD is non-flammable. For further information, please refer to the respective Product Material Safety Data



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### Important note :

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