501™ SMART CRETE

ACRYLIC POLYMER FOR CEMENT COMPOSITE AND ITS MULTIPURPOSE USES

Engineer® Plus Waterproofing & Heat Proofing Solutions

## Description

**Engineer Plus SmartCrete-501** is an acrylic based Polymer Modified Cementitious Flexible Composite coating system. Engineer Plus SmartCrete-501 in conjunction with cement provides properties to combat the shortcomings of plain cement, particularly its poor adhesion properties, low impact strength, low flexural strength and thin section fragility. Engineer Plus SmartCrete-501 polymer adds to the potential use as well as enhances the properties of cement slurry/ mortar/concrete making them excellent choice for use in new as well as renovation work.

## Area of Application

Engineer Plus SmartCrete-501 is used for surface treatment, protecting, waterproofing and repairing concrete and masonry. Waterproofing of basements, toilets, terraces, roofs, swimming pools, water towers etc. General concrete repairs. Protection of concrete against corrosion, salt attack etc.

## Features & Benefits

- Combines a tough, flexible, hard-wearing surface with waterproofing.
- Allows trapped vapour to escape thus preventing peeling and blistering.
- Can be applied in uniform thickness to horizontal and vertical surfaces.
- Develops excellent bond to most building materials.
- Reduces or prevents salt penetration into concrete.
- Is not affected by ultraviolet light or by chemicals ranging from mild acids to strong alkalies.
- Is highly durable in continuous wet condition.
- Is non-flammable and does not give off toxic gases, when exposed to fire.
- Will not rot or corrode.
- Most properties improve with age.
- Is not harmful to the health of workman.

## Method of Application

**Surface Preparation**

Prior to application of **Engineer Plus SmartCrete-501,** surface must be prepared as mentioned below to avoid failure and to achieve maximum beneficial properties.

- The surface shall be cleaned to remove all dust, foreign matters, loose materials or any deposits of contamination which could affect the bond between the surface and the **Engineer Plus SmartCrete-501** coating. This can be done by scarifying, grinding, water blasting, sand blasting, and acid washing or by any other approved method.

- New flat surface like sub-base concrete shall be made reasonably smooth so as not to impede the application of Engineer Plus 501 SmartCrete coating and to avoid sharp projections.
- All concrete surfaces shall be thoroughly pre-wetted prior to the application of Engineer Plus 501 SmartCrete coating by pouring water on flat surface or by spraying water on vertical/inclined surfaces.
- When placing Engineer Plus 501 SmartCrete coating, water should be removed so that surface is only damp. In no case there should be standing water.
- Depressions are to be filled and levelled using Engineer Plus 501SmartCrete fillers. For filler, the mixing ratio is 1 kg cement: 1.5 kg silica sand: 0.50 kg of ENGINEER PLUS 501 SMARTCRETE.

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### Application

• ENGINEER PLUS 501SMARTCRETE -polymer is mixed with neat fresh cement in the ratio of 1:2 by weight. The mix has to be stirred thoroughly until smooth homogeneous slurry is obtained. Wait for 5-10 minutes to release entrapped air bubbles. Any lump found in the mix should be removed or mixed thoroughly. The mix has to be applied by brush on rendered and/or prepared surface. Two or more coats are recommended. First coat should be allowed to air dry for 5-6 hours prior to apply subsequent coat.

### Curing

• After application of final coat of ENGINEER PLUS 501 SMARTCRETE-, initial air drying shall be done for 2-6 hours. During this period no water is to be used for curing. In case of high temperature and low humidity combined with high wind condition, the coating shall be covered with polythene sheet to avoid rapid drying of the coating. After maximum period of 6 hours after the final application, moist curing shall be done for the next 24 hours by spraying/sprinkling of potable water on **ENGINEER PLUS 501 SMARTCRETE COATING.** During this period at no point of time should the **ENGINEER PLUS SMARTCRETE-501** coating be left completely dry or submerged in water. Following moist curing, the **ENGINEER PLUS 501SMARTCRETE** coating shall be allowed to air dry for 2 days before submersion in water.

## Precautions

- ENGINEER PLUS 501 SMARTCRETE system must be applied with temperature above 10$^{o}$C and below 40$^{o}$C.
- ENGINEER PLUS 501 SMARTCRETE should not be used without addition of cement.

## COVERING CAPACITY: SMARTCRETE-501 COATING/SLURRY

Mix proportion: 2 kg cement: 1 kg 501 SMARTCRETE Polymer

| Material | One coat on concrete Kg/m2 | Two coat on concrete Kg/m2 |
|---|---|---|
| **Cement** | 0.5 | 0.750 |
| **SmartCrete-501 Polymer** | 0.25 | 0.375 |

## SMARTCRETE-501 BRUSH TOPPING

| Material | Quantities of Material in Kg for One cubic meter | 1 sq.m. of 1.5 thickness |
|---|---|---|
| **Cement** | 860 | 1.30 |
| **SmartCrete-501 Polymer** | 430 | 0.65 |
| **Fine Silica Sand** | 860 | 1.30 |
| **Total Weight in kg** | **2150** | **3.25** |

## Technical Data Sheet

| PROPERTIES | SPECIFICATION |
|---|---|
| Appearance | Milky white coloured free flowing liquid. |
| Viscosity, Seconds | 12 ± 1 |
| Solid content | 30 ± 3 (w/w) |
| pH Value | >7 |
| 14 days Bond Strength, N/mm2 | 2.0 (Minimum or concrete failure) |
| 28 days Compressive strength, N/mm2 | 30 (Minimum) |
| Recoating Time, at 27℃ , 65% RH, Hours | 4-6 |
| Full Cure | 14 days |
| Ash Content, % (w/w) | <1.0% |