

## SAFE - T - CAPSULE

### Encapsulated, Ready -to-Use, Non-Shrink, High Alumina, Mechanical Rock Support Grout for Mining and Tunneling Industries

#### Description

SAFE - T - CAPSULE an encapsulated High Alumina Portland Modified Cement rock support grout material which when submersed in water for approximately 3 minutes and then inserted into the anchor hole achieves desired rock bolt support.

#### Typical Applications

Where quick strength fixing of anchor bolts into rock, concrete, masonry or other material of sufficient strength will take the loading required. SAFE - T - CAPSULE can be applied into vertical and horizontal holes. (Grouting of anchor bolts as required in mining and tunneling operations.)

#### Product Range

SAFE - T - CAPSULE encapsulated grouts comprise the following product range:

#### One Hour Grout Support

##### SAFETCAPSULE(1/2 FAST):

One hour pull out with a minimum 20 kN on 200mm x 16mm ripple bar. A theoretical bond pull-out of 10 tons/1 meter of bar in 1 hour.

##### SAFE - T - CAPSULE (1 / 4 Extended): (Fast)

This product is used in place of SAFE - T - CAPSULE (1/4) where abnormally high underground temperatures are experienced and where additional pot life is required. 1 hour with a minimum 40kN on a 200mm x 16mm ripple bar. A theoretical bond pull out of 20 tons per meter of bar.

##### SAFE - T - CAPSULE (1 / 6): (Fast)

1 hour pull-out with a minimum 60 kN on a 200mm x 16mm ripple bar. A theoretical bond pull-out of 30 tons per meter of bar\*.

##### SAFE - T - CAPSULE (24/ 5): (Slow)

A 24 hour pull-out with a minimum 50 kN on a 200mm x 16mm ripple bar. A theoretical bond pull-out of 25 tons per meter of bar\*.

#### Advantages

- \* Non-shrink controlled chemical expansion removing the risk of failure in underground applications
  - \* SAFE - T - CAPSULES capsules are quick and easy to apply.
  - \* High impermeability preventing water and moisture penetration, therefore eliminating corrosion.
  - \* No added Chlorides, Nitrates, Sulphates or Gypsum.
- SAFE - T - CAP is non-burning and non-toxic.

#### Typical Properties

##### Compressive Strenghts (Mpa) according toASTM 109-77

Age	1/2	1/4	1/6	24/5
1 hour	8	10	12	-
4 hours	10	14	16	-
1 day	14	16	22	20
7 days	18	18	26	30
28 days	20	24	30	38

#### Bond Pull-out (kN)

The bond pull-out (kN) using a 200mm x 16mm ripple bar housed in a 60mm diameter pipe is actually a measure of the shear strength of the SAFE - T - CAPSULE grout. The following are typical laboratory results:

Age	1/2	1/4	1/6	24/5
1 hour	20	40	60	-
4 hours	40	45	65	-
1 Day	50	50	+100	50
7 Days	55	55	Bar Failure	
28 Days	60	60	Bar Failure	

#### Directions for Use

Submerge into water for approximately 3 minutes, the required number of SAFE- T - CAPSULE Capsules, (until the air bubbles stop) allowing complete absorption. The entire hole must be filled with SAFE - T - CAPSULE Capsules. Push the specified bar, rope dowel or shepherd's crook through the capsules to the length of the hole and leave to set.

#### Packaging

Supplied in woven polypropylene bags with a moisture resistant inner liner

#### Quality Assurance

MCC LIMPOPO's production and testing programmes comply with all local and international testing standards.

Note: All SAFE - T - CAP capsules are supplied with quality assurance certificates. Further test methods will be made available on request.

**This data sheet supersedes all previous issues prior to this date: 01/07/2008**