Dry Tech Aerogels (Pty) Ltd

The right coating for ultimate insulation.

Aerogel Products and Integrated Service Provider Leader in Energy Conservation and Environmental Protection Innovative Technology

Prime Aerocon CM Technical Data Sheet (WER050)

SUMMARY

Prime Aerocon CM is an ammonia free acrylic emulsion with aerogels, is specifically designed to modify cement compositions. Important application areas include:

- Patching and resurfacing
- Floor underlay
- Terrazzo flooring
- Spray and fill coats
- Pre-cast architectural building panels
- Stucco industrial cement floors
- Cement slurries
- Highway and bridge deck repair.
- Dam Walls
- Plaster

Characteristics of the Product

Prime Aerocon CM belongs to a new generation of environmentally friendly cement modifiers. It is:

- APEO free
- Ammonia free
- Formaldehyde free

Prime Aerocon CM is an important milestone in the development of environmentally advanced solutions for manufacturers of mortars and concrete admixtures. The key technical features of performance improvements obtained through the application of Prime Aerocon CM are:

Strength: Compared with unmodified mortars, polymer and aerogel modified mortars have superior flexural, and impact strengths, excellent abrasion resistance and excellent insulation and sealing abilities.
Adhesion: Prime Aerocon CM modified cement mortars have excellent adhesion to a variety of substrates such as concrete, masonry, brick, wood, metals, and others, will penetrate any substrate, also due to the ability of aerogels.

Durability: Cement mortars prepared with Prime Aerocon CM are resistant to many industrial chemicals and have excellent resistance to ultraviolet light and give heat insulation due to aerogel content.

Curing Advantages: Unlike unmodified mortars, which require laborious moist curing conditions for optimum strength properties, polymer and aerogel modified mortars should be air cured at ambient temperature and standard relative humidity
Storage Advantages: Prime Aerocon CM emulsion is sediment-free and stable to a minimum of five cycles of freezing at -15°C and thawing at 25°C. In the cold or after prolonged storage, it is desirable that the emulsion be thoroughly stirred prior using to ensure a completely homogeneous mixture
Typical Physical Properties

- Appearance Milky white liquid
- Solids Content % 47
- pH 10
- Freeze-Thaw Stability 5 cycle's
- Specific gravity 1.06
- Viscosity < 100 mPa.s
- Minimum Film Formation Temperature 10°C
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FORMULATIONS GUIDELINES

Recommendations

For optimum performance of the polymer modified cement mortar, the following recommendations should be complied with.

- Curing Conditions
- Air cure conditions should be applied rather than moist cure conditions for optimum polymer film formation properties
- Air Content
- Air has an adverse effect on mechanical strength properties of cement mortars, as expressed by the Ferret's relationship:

Relative mechanical strength = Where

- k = Constant function of cement type
- k1 = Pozzolanic activity coefficient
- k2 = Filler activity coefficient
- w = Water content
- a = Air content
- c = Cement content
- Dc = Cement specific gravity

Therefore, when modifying cement mortars with Prime Aerocon CM, it is important to minimise the air entrainment due to foaming at a maximum level of 5% by using an appropriate amount of defoamers. Water Level As a general rule and indicated by the Ferret's relationship, water should be held to the lowest amount needed to achieve a suitable working consistency. By using a minimum amount of water, maximum strength properties are obtained. As Prime Aerocon shows a marked

plasticizing effect, increasing amounts of Prime Aerocon used in the cement mortar require decreasing amounts of water for a suitable workable consistency. The following defoamers were found to be efficient in Prime Aerocon CM at a 0.5% level on emulsion:

Defoamers Supplier Tego1 LAE-511, Tego Drew2 210-693 Ashland Chemicals Byk3 037 Byk Dehydran4 P-3215 Henkel

Film Formation Properties

Prime Aerocon CM SDS can be used as such in cementitious compositions at ambient temperatures in the range: -20 to 60°C on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products.

Dry Tech Aerogels recommends that you obtain copies of our material safety data sheets from your local Dry Tech Aerogel representative on each of our products prior to its use in your facilities. We also suggest that you contact your supplier of other materials recommended for use with our products for appropriate health and safety precautions prior to their use.

Also visit Dry Tech Aerogel Website: www.drytechaerogels.co.za

These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control.

We recommend that the prospective user determines the suitability of our materials and suggestions before adopting them on a commercial scale.

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