

Product Information



PREvent-C™ **Shrinkage-reducing Admixture**

Description: Shrinkage-reducing and crack-control admixture for cementitious mixes.

Typical Properties:

Appearance	Free-flowing powder, off-white to light brown	
Density	Loose bulk density (lb/ft ³)	43.3
	Tapped bulk density (lb/ft ³)	59.5
pH (10% aqueous slurry)	10-11	

Product Description:



PREvent-C admixture is a specially formulated powder that provides dual functionality to prevent cracking or curling caused by shrinkage. PREvent-C can reduce shrinkage-induced cracking by as much as 90 to 100%, depending on mix design and amount of PREvent-C used. A minimum of 80% shrinkage reduction can be expected in most cases. Based on new, innovative technology developed by PremierCPG, the material is designed to facilitate expansion of concrete at the same rate as drying shrinkage during the curing period, and to reduce the capillary surface tension of pore water. Surface tension of capillary pore water has been linked to formation of a meniscus during hydration, which accounts, at least partially, for shrinkage. Expansion ceases within 28 days during hydration and does not continue once the concrete has hardened. PREvent-C has no known detrimental effects on either plastic or hardened properties of concrete and cementitious mixes. In air-entrained concrete, a small increase in air-entraining admixture may be necessary to obtain desired air content. Admixture meets ASTM C 494 Type S standards.

Uses:

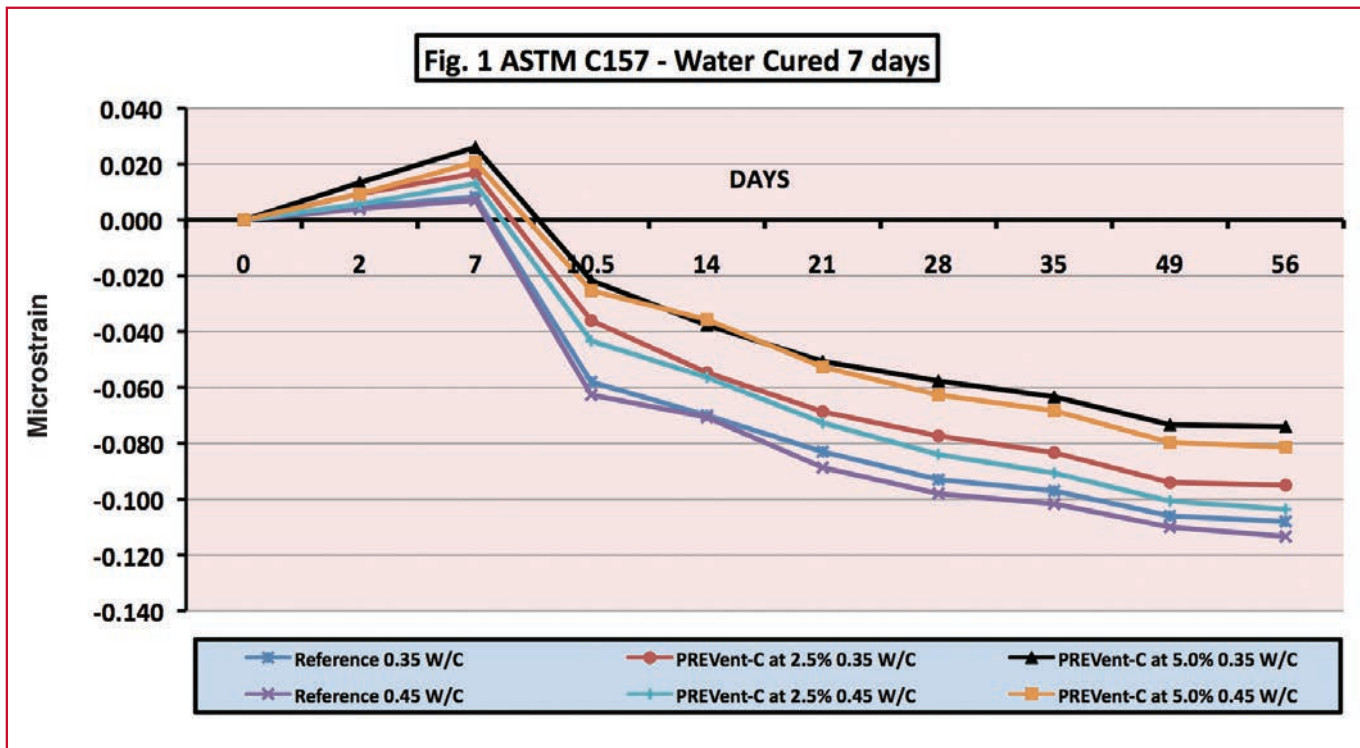


PREvent-C can be used in all types of concretes and mortars, whether cast-in-place, mass, precast or prestressed. The material can be used in straight Portland cement mixes or blended cement mixes. Typical applications include bridge decks, parking structures, dams, runways, stadiums, flooring applications, decorative concrete, and masonry or tile grouts and mortars. The material is especially effective where concrete is highly restrained, like with most steel or other reinforced concrete applications. It is also effective with both air-entrained and non-air entrained concrete. Because it is

a free-flowing powder, PREVent-C can be pre-blended with dry packaged mixes, mortars and grouts, or added at the time of use. The material also is effective for use with shotcrete mixes. PREVent-C reduces both drying and autogenous shrinkage-induced macrocracks and microcracks in concrete, which enhances its sustainability. PREVent-C does not contain chlorides or other materials that could contribute to corrosivity of reinforcing steel.

Performance: Figure 1 illustrates the effectiveness of PREVent-C in reducing drying shrinkage in ASTM C157. At 5 addition, based on cement content, PREVent-C reduced shrinkage microstrain to below 0.06 in 28 days and did not exceed 0.09% even after 56 days in mixes at both 0.35 w/c and 0.45 w/c. This level of shrinkage-versus-control is expected to significantly reduce shrinkage-induced cracking.

Figure 1:



Testing in mortar on the ASTM C1581 ring test yielded no cracking after >200 days, at which time the test was stopped as microstrain actually was decreasing slightly, indicating no cracking was expected.

Benefits:



- Significantly reduces shrinkage cracking
- Reduces compressive creep
- Reduces autogenous shrinkage
- Improves durability
- Decreases curling and related cracks
- More effective and economical than alternative SRAs
- Allows for reduced usage of control joints
- Reduces water and salt infiltration by reducing cracks

PREvent-C may cause slight retardation of set time, varying according to the mix and source of cement. When using PREvent-C, a slight decrease in air content may be experienced that can easily be adjusted by a small increase in the addition rate of air-entraining agent. No known negative effects on strength gain or plastic properties of concrete are expected by the addition of PREvent-C to the concrete mix.

Addition Rates:



Typical PREvent-C addition rates are 5% w/w addition, based on cement content, or 5 lbs. for each 100 lbs. of cement in concrete, mortar or grout. Depending on the mix, this usage level is expected to decrease shrinkage cracking and creep by more than 80%. Addition rate can be varied (higher or lower) to obtain the desired shrinkage-cracking requirements. It is recommended that trial mixes be tested according to ASTM C157 prior to placement.

TO PREVENT DRYING SHRINKAGE, ENSURE THAT PROPER CURING IS PROVIDED WHEN PLACING CONCRETE. PREvent-C is not designed to compensate for improper or inadequate curing procedures.

Usage:



PREvent-C should be added to the mix as a powder, just like cement or pozzolans. Do not pre-dissolve or mix as a slurry in water before adding. PREvent-C should be added to the mix before other admixtures or water. Allow sufficient time for mixing (minimum 60 seconds) to ensure even distribution of product in the mix.

Material has been tested for compatibility with several admixtures. While no negative interactions have been observed, it is always prudent to test mixes with other admixtures being used to avoid unexpected negative effects.

Packaging: PREvent-C is available in 50-lb. lined bags and 1,000- and 2,000-lb. lined bulk sacks. Bulk truckload or railcar delivery is available upon request.

Handling and Storage: Store in a dry, protected place. The product is stable under normal conditions of dry storage. Do not allow water to get inside containers; reaction with water will cause the product to swell, generate heat, and expand its container. Exposed, un-protected material will absorb moisture and carbon dioxide from the air. Minimize the generation of dust during handling and transfer of material. While PREvent-C has low toxicity, appropriate personal protective equipment always should be worn when handling material. See MSDS for more information.



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