NEG PRODUCT BULLETIN NO. 101

AR-CRACKNON™

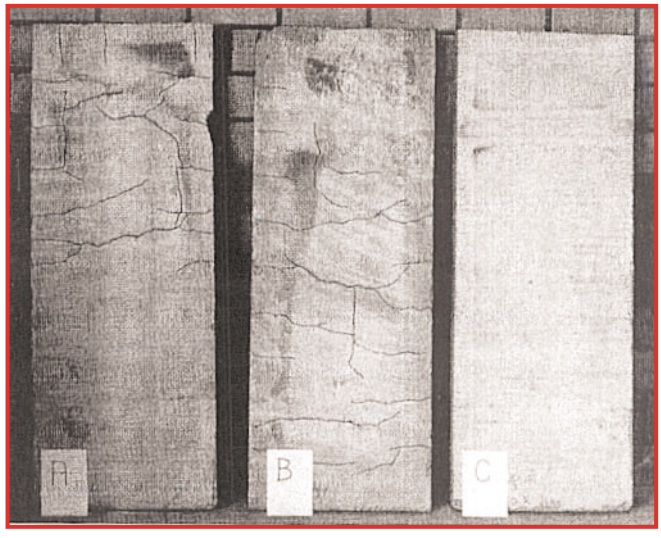
High Zirconia Alkali Resistant Glass Fiber (ARG) for Controlling Cracking in Concrete

WHY AR-CRACKNON?

AR-CRACKNON can provide not only plastic shrinkage crack control but also it can control restrained drying shrinkage cracking. This is because of its high tensile strength, high Young's Modulus and excellent mixing characteristics that allow high fiber contents.

HOW MUCH AR-CRACKNON IS REQUIRED?

Plastic Shrinkage Crack Control	1 lb./cu. yd or 0.5 lb./cu. yd. with AR-CRACKNON Net
Restrained Drying Shrinkage Crack Control	4-8 lb./cu. yd. for typical concrete mixes and up to 25-lb./cu. yd. for crack-free shotcrete



Crack patterns in test slabs with different reinforcing concepts.

Both the non-reinforced slab strip (A) and the slab strip reinforced with a steel mesh (B) exhibited a marked cracking behavior. Only the slab strip (C) reinforced with a low dosage of AR-CRACKON did not exhibit any cracking.

IS YOUR GLASS FIBER AR?

Alkali Resistance (AR) is Key.

The glass fiber must be resistant to the alkaline condition of the concrete. Only a minimum amount of zirconia in the glass composition will provide true alkali resistance.

Concrete is very alkaline and as such it will quickly corrode "E" glass fibers, the type of glass fibers that are used to reinforce plastics. For effective reinforcement only glass fibers that have been specially developed to be alkali resistant, such as those containing zirconia should be used, and not those dependent on a surface coating for corrosion protection. The higher the zirconia content the better the alkali resistance, which is why AR-CRACKNON has a minimum zirconia content of 19%.

WHICH AR-CRACKNON TYPE IS RIGHT FOR YOUR APPLICATION?

Semi-Dispersible AR-CRACKNON

For plastic shrinkage crack control at addition rate of 1 lb./cu. yd. Hides easily to provide a fine finish on your concrete surfaces (no hairiness or rust). Chopping from continuous roving can meter it in. Available in 1/2-inch length.

Integral AR-CRACKNON

Allows higher fiber content and provides maximum tensile strength for restrained drying shrinkage crack control. Available in lengths of 1/2, 3/4, 1 and 1 1/2 inch.

Continuous Roving AR-CRACKNON

A convenient way for metering in fiber by chopping directly into the mixer or onto the conveyor. Available as Semi and Integral chopped strands.

AR-CRACKNON Net

This product can be placed in the concrete where maximum effect can be derived from the AR glass fibers. They can be placed in the outer surfaces of the concrete where the tensile stresses and cracking tendencies are greatest. Several nets are available; please contact NEGA to determine which is best suited for your application.

Dispersible AR-CRACKNON

Gives maximum number of filaments (crack stops) for plastic shrinkage crack control. Typically used with AR-CRACKNON Net at addition of 0.5 lb./cu. yd. Available in lengths of 1/4 and 1/2 inch.

HOW IS AR-CRACKNON MIXED?

Chopped strands should be added to the concrete mix as the last ingredient and mixed a maximum of three minutes. To obtain optimum effect from the fibers, they should be added at the job site just prior to pouring or pumping.

HOW TO PLACE AR-CRACKNON NET

AR-CRACKNON Net is simply placed on the prepared ground and the concrete* is poured onto it. After the concrete has been placed and leveled the topside is trowelled into the surface so that it just disappears from view.

*****_For maximum crack prevention, AR-CRACKNON chopped strands, either Dispersible or Semi-Dispersible can be added to the mix._

Nippon Electric Glass America, Inc.

ARG Division
2604 W. Marshall Drive, #102
Grand Prairie, TX 75051
Tel: 972-602-1740 • Fax: 972-602-1760
www.negamerica.com

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