FORTA-FERRO® The Next Generation

History

FORTA Corporation introduced synthetic fiber reinforcement to the U.S. concrete market in 1978. The first of its kind in the industry, FORTA® offered a variety of fiber characteristics - shape, length, chemistry, and dosage – to perform at varying levels of crack control in many concrete applications. Generally, short monofilament (angel-hair) fibers have been used at a dosage of 1.0 lb. per cubic yard to reduce plastic shrinkage cracking prior to the concrete's initial set. Heavier fibrillated (net-shaped) fibers have been used at a higher dosage of 1.5 lbs./cubic yard to reduce plastic and hardened concrete shrinkage cracking and add durability as a viable alternative to conventional temperature steel such as wire mesh. These fiber types have enjoyed scores of successful flatwork project and precast product applications for over 30 years.

Next Generation

FORTA® has continued to strive for a higher level of performance by maximizing each of the critical fiber characteristics that contribute to that performance. After years of research and development, FORTA® introduced this next-generation fiber – FORTA-FERRO® - in late 1999 that is capable of a much higher replacement level of steel reinforcement. This patented fiber is actually a blend of two fibers:

1.) a standard fibrillated polypropylene fiber to reduce and control shrinkage and temperature cracking, and
2.) a very heavy-duty twisted-bundle monofilament fiber made of a strong synthetic copolymer, to increase load-transfer and post-crack performance. This pre-blended fiber is typically used in long lengths (2-1/4") and in high dosages (5 to 30 lbs./cubic yard) to affect a higher replacement level of reinforcing steel than standard synthetic fibers. FORTA-FERRO®, which means "Strong As Steel", is also extremely user-friendly, having gained a reputation as the best mixing and finishing fiber of its kind in the industry.

Applications

FORTA-FERRO® has been tested by scores of agencies, laboratories, and testing facilities in a wide variety of performance areas, such as toughness, impact resistance, flexural strength, and residual strength. FORTA-FERRO® has also been compared in residual strength (ASTM C-1399) to the major brands of steel fibers, resulting in an average replacement value of 1:10 (FORTA-FERRO®: steel fibers). FORTA-FERRO® has been involved in composite-product vacuum testing in precast tanks and boxes, and tested under crushing loads in vaults and manholes. This laboratory and real-world field testing has allowed FORTA-FERRO® to gain widespread acceptance and use in septic tanks, burial vaults, manholes, and other precast products where the reduction of steel and placement labor has resulted in a sizable savings to the producer. And FORTA-FERRO® has also been used in scores of flatwork projects as well to reduce and/or eliminate the need for reinforcing steel, such as streets, bridge decks, and manufacturing and commercial floors. Continuing research programs and pilot field trials are also being performed to investigate the possibilities of joint-space extension and reduction, due to the tremendous reduction in shrinkage and slab curling afforded by these high-volume, high-strength fibers.

For more information on cost-comparisons, research, or additional project references, contact your local concrete producer or FORTA® representative.

FORTA Corporation
"Reinforcing the Future"
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