

# WHICH FIBER SHOULD I USE?

## What should I care which fiber I am using?

The characteristics of a synthetic fiber can be divided into four categories: the shape of the fiber, chemical makeup, recommended dosage and optimum length. Different combinations of these characteristics will produce varying levels of performance. Forta's fiber options include monofilament, fibrillated and macrosynthetic fibers.

## How can we reduce plastic shrinkage cracks in concrete?

Shrinkage cracks occur when the surface of the concrete dries faster than the concrete can cure. Cracks can be reduced by adding a fiber to reduce the rapid moisture loss at the concrete surface. In the past, fibers such as grass, straw or animal hairs were used to accomplish this. Advances in technology have allowed for the use of synthetic fibers in concrete to reduce shrinkage cracking at a much higher rate. FORTA® is the pioneer of synthetic fiber technology, with over 32 years of innovation and success in producing fibers that will reduce shrinkage cracking.

## Can synthetic fibers replace light gauge wire mesh in concrete?

Synthetic fibers have been used to replace light gauge wire mesh in the U.S. for over 32 years. It is important to use a fibrillated "net-like" fiber, which is deformed sufficiently to create anchor points in the concrete and works to hold cracked concrete together. Materials used to produce the fiber should not absorb water or breakdown in the alkalinity of concrete. For best results the fiber should consist of polypropylene, and the maximum length and quantity of fiber should be utilized. FORTA® recommends a fiber length of 1.5" and a dosage rate of 1.5 lbs/yd<sup>3</sup>.

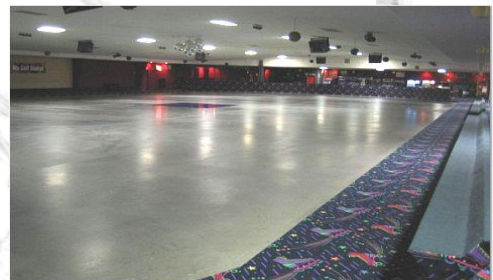
## Will joints or saw cuts help to reduce cracks and curling?

Joints or saw cuts are simply pre-determined cracks, used to relieve stresses from shrinkage and curling. The edges of each crack are still likely to curl upward and inward. Constant traffic from material handling equipment over these joints and saw cuts will lead to further concrete deterioration, resulting in expensive surface and equipment repairs and ultimately, loss of production.



## What is the benefit to using fiber reinforcement rather than steel reinforcement in concrete?

Traditional steel rebar or wire mesh has only one application in concrete slabs: to hold cracked concrete together. Steel is typically supposed to be placed in the center of the slab, but is rarely positioned properly. FORTA-FERRO® is three-dimensional, increases impact resistance, freeze/thaw durability endurance and overall toughness of the concrete. The instant a crack occurs, there are fibers working to keep the micro crack from becoming a macro crack. FERRO is non-corrosive, non-conductive, safe and easy to use, and faster to install. Simply throw the fiber into the concrete mixer system and mix for five minutes.



## What are macrosynthetic fibers and how do they differ?

Macrosynthetic fibers are the latest advancement in fiber technology, and have been in existence for over 10 years. The shape and collation of FORTA-FERRO® allows for the introduction of much higher quantities of longer length fibers into the concrete. Depending on the manufacturer, macro fibers are produced in many different shapes, sizes and collation methods. Each different combination results in varying levels of performance and user-friendliness. In accordance with first generation synthetic fibers practices, the length and quantity of macrofibers should be maximized. For best results, FORTA® recommends a fiber length of 2.25" and a dosage rate of 3.0-7.5 lbs/yd<sup>3</sup>.

## What are the benefits to using FORTA-FERRO® fiber?

FORTA-FERRO®'s twisted bundle technology assures you have the best mixing fiber available, allowing for easy mixing in nearly all concrete mix designs. FORTA-FERRO® is an industry recognized reinforcement alternative for steel. It has been used to replace steel in all aspects of concrete design, from precast applications to slab-on-ground, and everything in between. FORTA-FERRO® is very economical to use, both from the initial cost standpoint as well as the reduction in time and labor costs. The dosage can be adjusted up or down for application purposes, depending on the needs of the customer and the expected results of the specific application. FORTA-FERRO® is produced in mixer ready bags that are simply thrown into the concrete mixer system and mixed for five minutes. Quite simply, FORTA-FERRO® is "Strong as Steel" and twice as easy to use!



FORTA®

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