



North Carolina Department of Transportation
Materials and Tests Unit – Product Evaluation Program
Innovative Technologies and Products Awareness Report
March 2nd, 2022



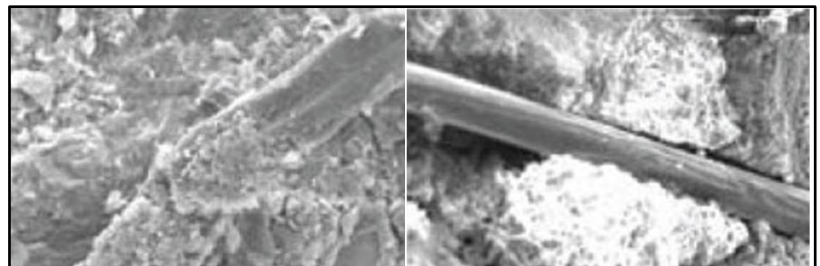
PRODUCT INNOVATION – UltraFiber 500[®]



Ultrafiber 500[®] cellulose fibers being added into a concrete mix – image from Ultrafiber 500[®] brochure

UltraFiber 500[®] is manufactured by Solomon Colors Inc. out of Springfield, Illinois. It is currently under evaluation and listed on the Approved Products List (APL) as NP21-8901. UltraFiber 500[®] is an alkaline resistant cellulose fiber reinforcement admixture for concrete. It replaces traditional welded wire mesh in concrete and provides for increased bonding between the concrete fibers over traditional polypropylene fibers. Unlike polypropylene fibers, UltraFiber 500[®] is invisible in concrete, does not ball, fuzz, or blemish, and is derived from renewable resources. UltraFiber 500[®] reduces shrinkage cracking, provides increased strength, durability, is distributed throughout the concrete matrix to provide 3-dimensional reinforcement and unlike welded wire mesh, will not corrode. For more information, please visit:

<https://www.solomoncolors.com/pages/ultrafiber/ultrafiber500.php#gsc.tab=0>



Microscopic image of UltraFiber 500[®] completely bonded to concrete (left), and Microscopic image of a polypropylene fiber incomplete bonding to concrete showing air voids (right) – images from UltraFiber 500[®] brochure

PRODUCT HIGHLIGHT – Geopolymer Concrete[™]

Wagoner's Geopolymer Earth Friendly Concrete[™] (EFC) is manufactured by PGM Advantage, Inc. out of Mooresville, North Carolina. It is currently under evaluation and listed on the APL as NP21-8878. Geopolymer EFC[™] replaces Portland cement and other constituents commonly found in traditional concrete mixes. It provides for a 30% increase in flexural strength, is acid resistant, and eliminates the detrimental Alkali-silica reaction found in traditional concrete mixes. The Geopolymer EFC[™] mix is also more resistant to sulphate and chloride ion ingress. Every cubic yard of 6,000 psi Geopolymer EFC[™] reduces CO₂ emissions by 500 pounds over a traditional concrete mix design. For more information, please visit: <https://pgmadvantage.com/>



Workers using a slip-form paver to install Geopolymer EFC[™] at an airport in Australia – image from PGM brochure