TECHNICAL BULLETIN FC-8

FAQ'S ON TECHNICAL ISSUES WHEN USING FIBERS

EUCLID CHEMICAL

Q: How does TUF-STRAND SF affect creep, fatique and shear strength?

A: TUF-STRAND SF has been tested under various methods to measure its response under creep, fatigue and shear loading. In general, TUF-STRAND SF will improve the creep and fatigue response of concrete. TUF-STRAND SF has been shown to exhibit similar creep characteristics to some steel fibers due to its superior bonding capabilities. Synthetic fibers by themselves offer very little shear resistance but when these fibers hold concrete cracks tight, the "aggregate interlock" will actually provide limited shear transfer. The amount of shear capacity generated will be dependent upon the fiber dosage present and the applied load to the structure.

Q: Can TUF-STRAND SF be used in cold or hot weather conditions?

A: TUF-STRAND SF has been successfully used in environments where concrete is exposed to cold weather (bridge decks, pre-cast panels, etc.) and in locations where higher temperatures are encountered (mining applications). For fire resistance, TUF-STRAND SF will help in reducing the potential explosive spalling of concrete, but there are also other specialty products on the market designed for these types of applications.

Q: What do I do if the TUF-STRAND SF dosage is calculated to be very high? i.e. >12 lbs/yd^3 (7.2 kg/m^3)

A: TUF-STRAND SF has been successfully used on projects up to 20 lbs/yd^3 (11.9 kg/m^3) but this was done with specialty mixtures and a significant amount of superplasticizers. In some pre-cast applications, projects have been successfully completed by placing steel in strategic locations and using fibers throughout the entire product (i.e.: top bar steel remaining in a tank application with fibers to replace WWM in side walls). For slab designs, a redesign of the thickness may be warranted (i.e.: increasing the slab thickness may reduce the required amount of fibers to a point where the entire system will be feasible).

For additional questions, comments or further explanations, please feel free to contact The Euclid Chemical Company at your convenience.