

Adfil[®] Strux & Adfil[®] Sinta

Synthetic Fibers

Typical applications and benefits
for fiber reinforced concrete

MACRO VS. MICRO SYNTHETIC FIBERS

Macro synthetic fibers are typically used to provide temperature and drying shrinkage crack control as an alternative to welded wire reinforcement (WWR). Like WWR, their purpose is not to prevent cracks, but to minimize crack width opening. They are typically greater than 1.25 inches (32 mm) long with addition rates between 3 and 15 lb/yd³ (1.8 to 6.0 kg/m³) depending on specific design parameters.

Micro synthetic fibers are used to control plastic shrinkage cracks that occur prior to an initial set of concrete. Micro fibers are typically less than 1.5 inches (38 mm) long, with addition rates between 0.5 and 1.5 lb/yd³ (0.3 to 0.9 kg/m³).

MACRO FIBERS

TEMPERATURE & SHRINKAGE CONTROL

Adfil®Strux 90/40
Adfil®Strux 75/32
Adfil®Strux BT50

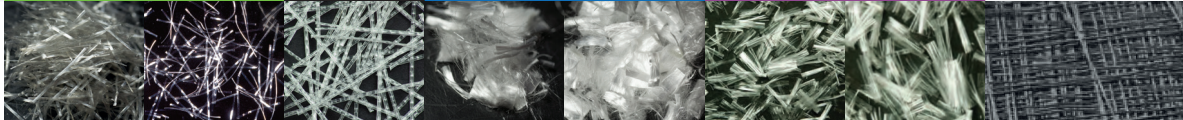
MICRO FIBERS

PLASTIC SHRINKAGE CONTROL

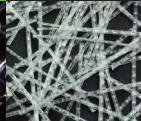
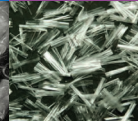
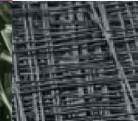
Adfil®Sinta M2219
Adfil®Sinta M3019
Adfil®Sinta F19
Adfil®Sinta F38

COMPARISON CHARTS

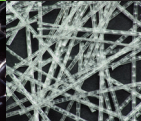
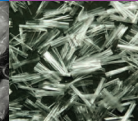
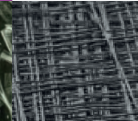
Typical Applications and Benefits of Synthetic Fibers

	Macro Fibers			Micro Fibers				Welded Wire Reinforcement
	Temperature and Drying Shrinkage Control and Plastic Shrinkage Control			Plastic Shrinkage Control				Temperature and Shrinkage Control
	Adfil®Strux 90/40	Adfil®Strux 75/32	Adfil®Strux BT50	Adfil®Sinta M2219	Adfil®Sinta M3019	Adfil®Sinta F19	Adfil®Sinta F38	WWR 6x6 - W1.4 x 1.4
Product Visual								
Material	Polyolefin	Polyolefin	Polyolefin	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Steel
Configuration	Monofilament Tape-Style	Monofilament Tape-Style	Monofilament Bi-Tapered	Monofilament	Monofilament	Fibrillated	Fibrillated	Rolled or Sheet
Length	1.55 in (40 mm)	1.25 in (32 mm)	2 in (50 mm)	.75 in (19 mm)	.75 in (19 mm)	.75 in (19 mm)	1.5 in (38 mm)	n/a
Elastic Modulus	1390 ksi (9.5 GPa)	1390 ksi (9.5 GPa)	1000 ksi (7.0 GPa)	500 ksi (3.45 GPa)	500 ksi (3.45 GPa)	725 ksi (5.0 GPa)	725 ksi (5.0 GPa)	29000 ksi (200 GPa)
Tensile Strength	90 ksi (620 MPa)	90 ksi (620 MPa)	80 ksi (550 MPa)	42 ksi (290 MPa)	42 ksi (290 MPa)	44 ksi (300 MPa)	44 ksi (300 MPa)	65 ksi (450 MPa)
Specific Gravity	0.92	0.92	0.92	0.905	0.905	0.905	0.905	7.8
Number of Fibers Per Pound (Nominal)	85,000	106,000	27,000	70 Million	30 Million	20 - 30 Million	10-15 Million	n/a
Typical Dosage / Placement	3-10 lb/yd ³ 1.8-5.9 kg/m ³	3-7.5 lb/yd ³ 1.8-4.4 kg/m ³	7-15 lb/yd ³ 4.2-8.9 kg/m ³	0.5-1.0 lb/yd ³ 0.3-0.6 kg/m ³	0.75-1.5 lb/yd ³ 0.4-0.9 kg/m ³	1-3 lb/yd ³ 0.6-1.8 kg/m ³	1-3 lb/yd ³ 0.6-1.8 kg/m ³	Single layer (Middle to Upper Third)

Typical Construction Applications of Synthetic Fibers

	Macro Fibers			Micro Fibers				Welded Wire Reinforcement
	Temperature and Drying Shrinkage Control and Plastic Shrinkage Control			Plastic Shrinkage Control				Temperature and Shrinkage Control
	Adfil® Strux 90/40	Adfil® Strux 75/32	Adfil® Strux BT50	Adfil® Sinta M2219	Adfil® Sinta M3019	Adfil® Sinta F19	Adfil® Sinta F38	WWR 6x6 - W1.4 x 1.4
Product Visual								
COMPOSITE METAL DECKS								
Multi-story Commercial	✓	✓	✓	✓	✓	✓	✓	✓
SLABS								
Residential / Light Commercial	✓	✓		✓	✓	✓	✓	✓
Commercial	✓	✓	✓	✓	✓	✓	✓	✓
Industrial / Warehouses	✓	✓	✓	✓	✓	✓	✓	✓
CONCRETE PAVEMENTS								
Parking Garages & Lots	✓	✓	✓	✓	✓	✓	✓	✓
Highways, Roadways & Runways	✓	✓	✓	✓	✓	✓	✓	✓
Overlays	✓	✓		✓	✓	✓	✓	✓
Thin Overlays		✓		✓	✓	✓	✓	
WALLS								
Exposed Concrete Walls & Sections	✓	✓	✓	✓	✓	✓	✓	
PRECAST								
Tilt-up	✓	✓	✓	✓	✓	✓	✓	✓
Vaults	✓	✓		✓	✓	✓	✓	✓
Tunnel Linings	✓	✓	✓	✓	✓	✓	✓	✓
Tanks & Containers	✓	✓		✓	✓	✓	✓	✓
Manholes	✓	✓		✓	✓	✓	✓	✓
OTHER APPLICATIONS								
Shotcrete	✓	✓	✓	✓	✓	✓	✓	✓

Benefits of Synthetic Fibers

	Macro Fibers			Micro Fibers				Welded Wire Reinforcement
	Temperature and Drying Shrinkage Control and Plastic Shrinkage Control			Plastic Shrinkage Control				Temperature and Shrinkage Control
	Adfil® Strux 90/40	Adfil® Strux 75/32	Adfil® Strux BT50	Adfil® Sinta M2219	Adfil® Sinta M3019	Adfil® Sinta F19	Adfil® Sinta F38	WWR 6x6 - W1.4 x 1.4
Product Visual								
FIRE RATED								
UL Certification	YES (max 5 lb / cu. yd.)	YES (max 5 lb / cu. yd.)	NO	YES (1 lb / cu. yd.)	NO	YES (1 lb / cu. yd.)	YES (1 lb / cu. yd.)	YES
Weight Approx. Per 100 sq. ft	4.92	4.92	NO	n/a	n/a	n/a	n/a	21
SDI STANDARD								
ANSI / SDI C 1.0 Standard	YES Min. 4 lb / cu. yd.	YES Min. 4 lb / cu. yd.	NO	NO	NO	NO	NO	YES
BENEFITS: PLASTIC CONCRETE								
Safe, Easy Handling	✓	✓	✓	✓	✓	✓	✓	
Plastic Shrinkage Crack Control	✓	✓	✓	✓	✓	✓	✓	
BENEFITS: HARDENED CONCRETE								
Drying Shrinkage Crack Control	✓	✓	✓					✓
Post-crack Load Carrying Capacity	✓	✓	✓					✓
Non-corroding	✓	✓	✓	✓	✓	✓	✓	
OTHER BENEFITS								
No Chairs Required	✓	✓	✓	✓	✓	✓	✓	
Uniform Dispersion	✓	✓	✓	✓	✓	✓	✓	
Minimum Concrete Cover Required								✓
Pumpability	✓	✓	✓	✓	✓	✓	✓	
Saves Time	✓	✓	✓	✓	✓	✓	✓	
Easy to Finish	✓	✓	✓	✓	✓	✓	✓	✓



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