



CAPROLAN - RC™

FIBERS

FOR INFORMATION:

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TO ORDER:

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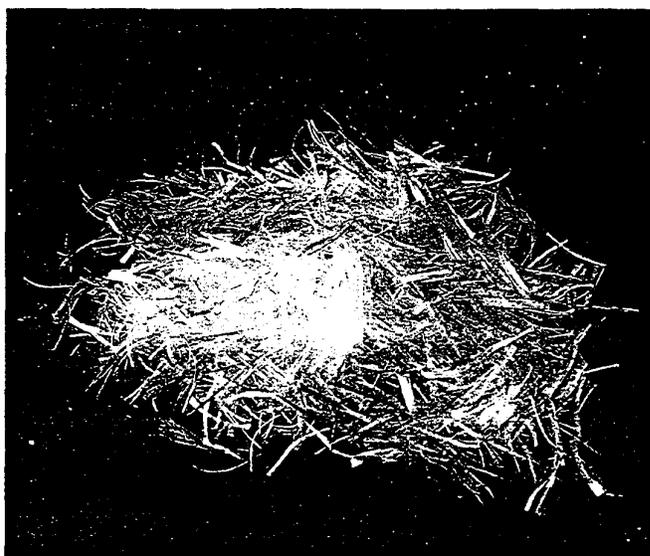
CAPROLAN-RC™ FIBERS

ARE MADE WITH NYLON 6
A PRODUCT OF ALLIED-SIGNAL INC



ALLIED-SIGNAL Inc Engineering Data Report #1

- Fiber Properties
- Air Content/Entrainment
- Compressive Strength
- Flexural Strength
- Splitting Tensile Strength
- Impact Strength
- Shrinkage Crack Reduction
- Fiber Distribution



Nylon 6

The following technical information is based upon an extensive research study conducted at Rutgers University. The material selection, specimen preparation, and testing protocols were all in accordance with ACI and ASTM standards.

TYPICAL PROPERTIES OF CAPROLAN-RC™ FIBERS

Material	100% Nylon 6	Acid and Salt Resistance	Good
Filament Diameter	23 Microns	Alkali Resistance	Excellent
Filaments/lb	34 Million	Ultra Violet Resistance	Excellent
Specific Gravity	1.16	Electrical Conductivity	Low
Fiber Length	3/4 inch	Thermal Conductivity	Low
Tensile Strength	130 ksi	Water Absorption/Concrete	0.72 oz/yd ³
Modulus (Youngs)	750 ksi	Concrete Surface	Non-Hairy
Toughness	15 ksi	Concrete Air Entrainment	No Effect
Melting Point	428 °F (220 °C)		

CONCRETE MIX PROPORTIONS

PROPERTIES OF PLASTIC CONCRETE

Type 1 Portland Cement	517 lb/yd ³
Natural Sand	1370 lb/yd ³
Crushed Stone (3/4" max.)	1800 lb/yd ³
Potable Water	298 lb/yd ³
Plasticizer/Cement	3 oz/100 lb
Air Entrainment Agent	2 oz/yd ³

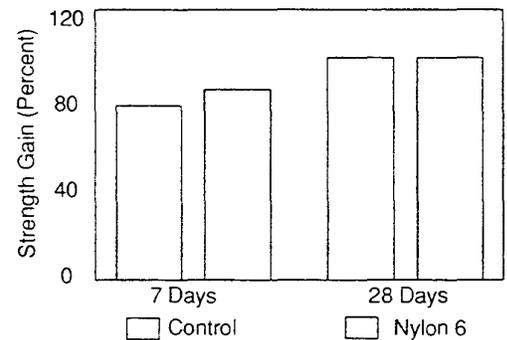
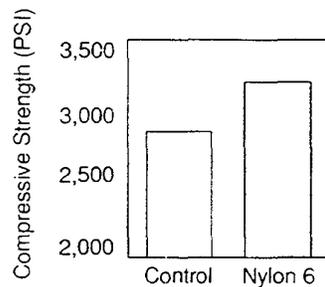
	Control	Nylon 6
Slump	7.0 in	5.25 in
Air Content	5.5%	6.0%

Nylon 6 fibers were added on the basis of 1 pound of fiber per cubic yard of concrete unless noted. The control specimens contained no fibers.

COMPRESSIVE STRENGTH (ASTM C-39) (6" x 12" CYLINDER)

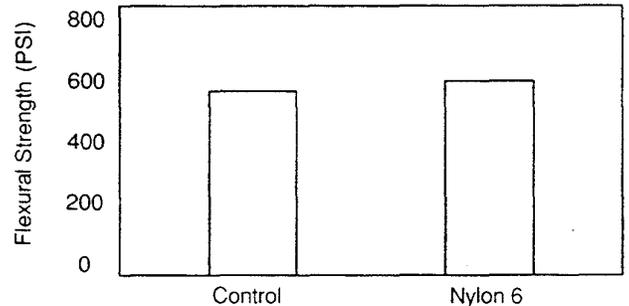
28 Day Breaks

Sample ID	Control (PSI)	Nylon 6 (PSI)
1	2829	3218
2	2918	3254
3	—	3201
4	—	3183
Average	2874	3214



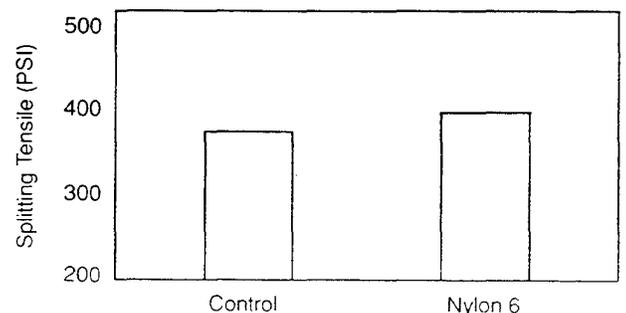
FLEXURAL STRENGTH (ASTM C-78) (4" x 4" x 14" BEAM, 28 DAY BREAKS)

Sample ID	Control (PSI)	Nylon 6 (PSI)
1	615	555
2	595	680
3	590	570
4	550	550
5	545	635
Average	579	598



SPLITTING TENSILE STRENGTH (ASTM C-496) (6" x 12" CYLINDER, 28 DAY BREAKS)

Sample ID	Control (PSI)	Nylon 6 (PSI)
1	323	412
2	413	386
Average	368	399

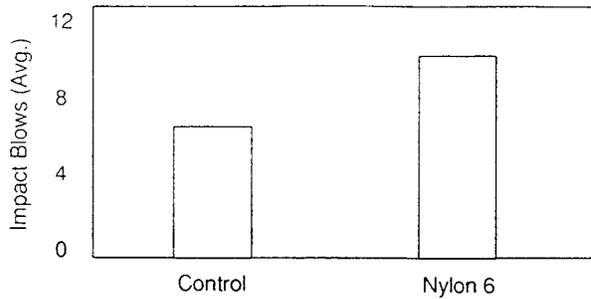


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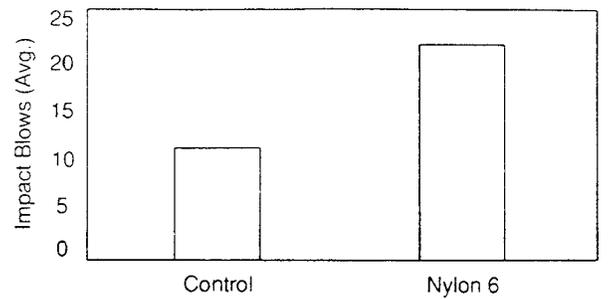
MADE WITH NYLON 6

IMPACT STRENGTH (ACI COMMITTEE 544) (6" x 2.5" CYLINDER, 28 DAY BREAKS)

First Crack	Control	Nylon 6
Number of Blows	5,8,5	9,12,9

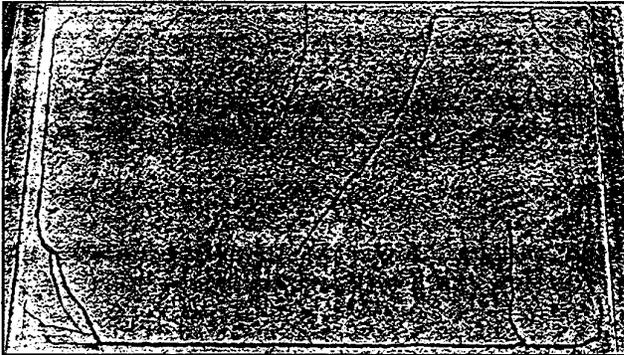
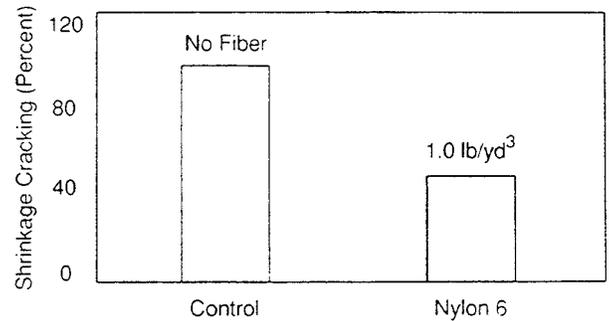


Failure	Control	Nylon 6
Number of Blows	10,15,8	24,24,18



SHRINKAGE CRACK REDUCTION (2' x 3' x .75" SLAB)

Mix: Mortar (No Coarse Aggregate)
 Cement to Sand Ratio: 1 to 1.5
 Test Time: 24 Hours
 Wind Velocity: 12 mph
 Temperature: 72 °F
 Relative Humidity: 70%
 Experimental Procedure: Crack widths and lengths are measured and assigned a weighted value.

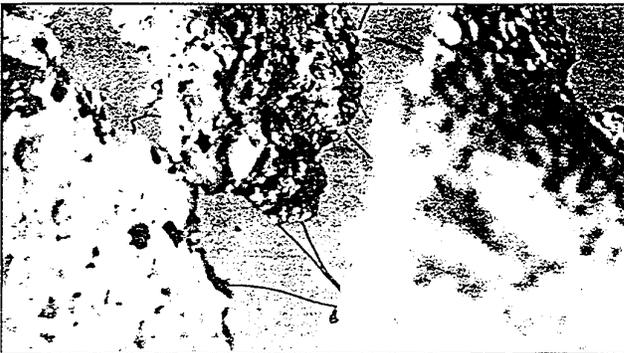


Control—No Fiber



Nylon 6 Fiber Reinforced

Under severe conditions, the addition of Nylon 6 fibers reduced crack area by 57% and out performed both polypropylene and polyester fiber reinforced panels.



Nylon fibers impart crack resistance by improving concrete's integrity. The magnification is 14X.