

	<p>Test Data:</p> <p>Effectiveness of NyconXL Fibers as Reinforcement in Hardened Concrete</p> <p>AVERAGE RESIDUAL STRENGTH (ARS)-ASTM C1399</p> <p>Test Report Submitted by South Dakota School of Mines and Technology</p>
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<p>Overview</p>	<p>The ASTM C1399 test program for NyconXL was conducted by the South Dakota School of Mines and Technology in January, 2002. Dr. V. Ramakrishnan was contracted to conduct these tests.</p> <p>There were two parts to the test program:</p> <ol style="list-style-type: none"> 1. The C1399 test was run with specimens containing 1.5 # of NyconXL fiber per cubic yard (y³) of concrete for the purpose of obtaining Dade County approval for use of NyconXL in ready-mixed concrete. 2. The second portion of the test was conducted for approval of NyconXL in precast septic tanks per specifications by the Florida Department of Health, Bureau of Sewage Programs. The specifications called for use of C1399 to determine the optimum dosage level of a given fiber required to meet a specific Average Residual Strength (ARS) value. The ARS minimum required was 115 psi. We established three NyconXL fiber dosage levels to run the tests: 3 #/y³, 4 #/y³, and 5 #/y³. <p>Based on test data generated, approximately 3.4 #/y³ of NyconXL were required to meet the ARS minimum of 115 psi. (The Florida DOH approved other manufacturers' fibers at four pounds per cubic yard or more.) Dr. Ramakrishnan indicated that he got excellent NyconXL fiber distribution at all dosage levels and the fibrillation pattern opened very well.</p>																
<p>Material Description</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Material:</td> <td>Polyolefin/Polypropylene</td> </tr> <tr> <td>Configuration:</td> <td>Collated Fibrillated</td> </tr> <tr> <td>Color:</td> <td>White</td> </tr> <tr> <td>Specific Gravity:</td> <td>0.91</td> </tr> <tr> <td>Length:</td> <td>1-1/2" (38mm)</td> </tr> <tr> <td>Tensile Strength:</td> <td>90,000-100,000 psi (620.7-689.7 MPa)</td> </tr> <tr> <td>Chemical Stability:</td> <td>Non-reactive</td> </tr> <tr> <td>Absorption:</td> <td>None</td> </tr> </table>	Material:	Polyolefin/Polypropylene	Configuration:	Collated Fibrillated	Color:	White	Specific Gravity:	0.91	Length:	1-1/2" (38mm)	Tensile Strength:	90,000-100,000 psi (620.7-689.7 MPa)	Chemical Stability:	Non-reactive	Absorption:	None
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Mix ID XL @ #/cy ³	Specimen ID	Load in Pounds at Deflection				ARS	
		0.02"	0.03"	0.04"	0.05"	psi	MPa
XL @ 1.5#	NG-1.5-F1	427	407	418	375	77	0.53
	NG-1.5-F2	444	355	322	282	66	0.45
	NG-1.5-F3	492	462	374	380	80	0.55
	Average					74	0.51
	Stan. Deviation					8	0.05
	% C.V.					10.40	10.40
XL @ 3.0#	NG-3.0-F1	561	535	514	471	96	0.66
	NG-3.0-F2	644	637	622	588	117	0.80
	NG-3.0-F3	581	577	572	573	106	0.73
	Average					106	0.73
	Stan. Deviation					10	0.07
	% C.V.					9.77	9.77
XL @ 4.0#	NG-4.0-F1	690	711	710	691	131	0.90
	NG-4.0-F2	743	688	634	596	126	0.87
	NG-4.0-F3	702	679	656	612	124	0.85
	Average					127	0.87
	Stan. Deviation					4	0.02
	% C.V.					2.82	2.82
XL @ 5.0#	NG-5.0-F1	773	735	714	671	132	0.91
	NG-5.0-F2	686	700	706	703	127	0.88
	NG-5.0-F3	767	779	762	721	141	0.97
	Average					134	0.92
	Stan. Deviation					7	0.05
	% C.V.					5.17	5.17



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