
 LafargeHolcim	<b>Identity Card of Material*</b> <b>Ductal® NaW3 FO STT</b>		 n° NaW3FO300STT
<b>Date</b>	October 2016	<b>Written by</b>	G. MOLINES
<b>Version</b>	1	<b>Validated by</b>	S. BERNARDI



\* according to the standard NF P 18-470 " Ultra High Performance Fiber-Reinforced Concrete – Specifications, performance, production and conformity".

General Characteristics	
Nominal formula and mixing process	Cf. Mix design sheet
D <sub>upper</sub>	0.6 mm
Length of fibres L <sub>f</sub>	12 mm
Class associated with the type of fibres	Type A
Designation	-
Casting Method	Placement by self-weight

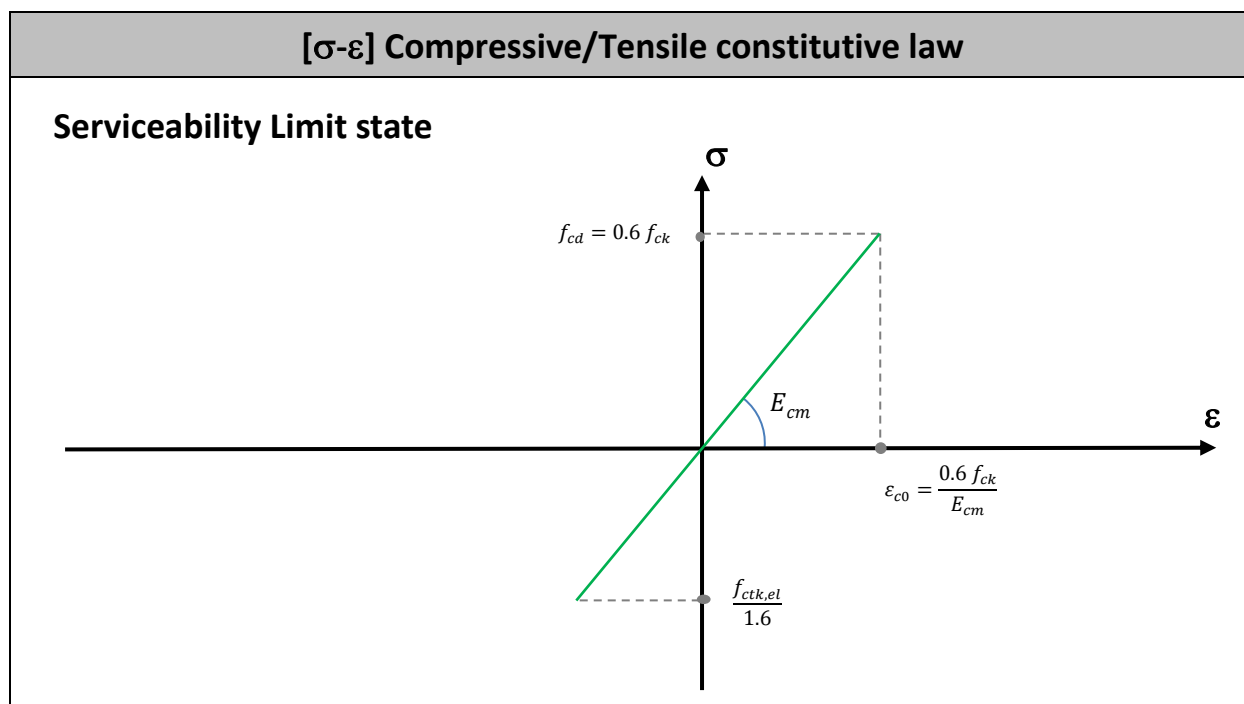
Heat treatment (TT)	
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Type of Heat Treatment	Not relevant
Description	Not relevant

Properties of fresh concrete	
Slump flow (ASTM cone)	240 mm ± 18 mm
Working time at 20°C	1 hour
Air content (entrapped air)	2.3 %
Curing conditions	Curing at 20°C (A curing product can be applied, if needed, on the exposed surfaces. These surfaces should also be protected to limit desiccation)

Mechanical Properties at 28 days or before/after TT			
	at 24 h	after TT	at 28 days
Characteristic compressive strength f <sub>ck</sub> (Compressive strength class)	-	-	100 MPa (UHPRC 100/115)
Characteristic value of limit of elasticity under tension f <sub>ctk,el</sub>	-	-	6.7 MPa
Mean value of tensile limit of elasticity under tension f <sub>ctm,el</sub>	-	-	7.5 MPa
Tensile behaviour class	T1		
Characteristic value of post-cracking strength f <sub>ctfk</sub>	3.2 MPa		
Mean value of post-cracking strength f <sub>ctfm</sub>	4.6 MPa		
Mean value of Young's modulus E <sub>cm</sub>	41 GPa		

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Durability Characteristics		
	Measured value	Class
Water porosity at 90 days	10.8 %	-
Apparent Gas permeability at 90 days	$\leq 7.14 \times 10^{-17} \text{ m}^2$	-
Apparent diffusion coefficient of chloride ions at 90 days	$\leq 1.20 \times 10^{-12} \text{ m}^2/\text{s}$	-

Hardened state Characteristics	
Density	2350 kg/m <sup>3</sup>
Coefficient of thermal expansion at 28 days	10.5 $\mu\text{m}/\text{m}/^\circ\text{C}$
Total shrinkage amplitude at 90 days	$\leq 1.3 \text{ mm}/\text{m}$

Other Characteristics	
Poisson's ratio	0.2
Creep coefficient	1.0
Class associated to reaction to fire	A2-s1, d0