FuturBeton C.1

nanostructured concrete

high strength ☼ CO_2-low ☼ super durability

– high performance concrete –

Performance test February 2016

manually mixed vs. machine mixed

FuturBeton C.1 provides high initial compressive strength. The way of mixing causes severe differences in the resulting strengths. Therefore tests have been performed applying intensive machine mixing compared to manually mixing.
As to be seen below, the mean compressive strength after 24 h in recent tests has been about 47.7 MPa. After 7 d a mean compressive strength of about 107.1 MPa has been reached. According to these measurements FuturBeton C.1 could be comparably classified as high performance concrete with strength class higher than C80/95 (defined: HPC > C55/67).

Test report

Compression Test **EN/12390-3** **test specimen:** **cube** **100x100x100**

Series name 1 controller Stein
Date of manufacture 11.02.2016 / 12:30 age 7d days 00:56
Test date 18.02.2016 / 13:26 FuturBeton after 7 days

name	dimensions			mass	bulk density	maximum load	strength	failure
	l	b	h	[g]	[g]	[kN]	[MPa]	
1	100	101	100	2440	2420	1058.0	104.8	
2	100	100	101	2480	2460	1105.0	110.5	
3	100	100	101	2480	2460	1061.0	106.1	
mean value					2440		107.1	
standard deviation					20		3.0	

Compression Test **EN/12390-3** **test specimen:** **cube** **100x100x100**

Series name 2 controller Stein
Date of manufacture 17.02.2016 / 12:30 age 1d days 01:04
Test date 18.02.2016 / 13:34 FuturBeton after 1 day

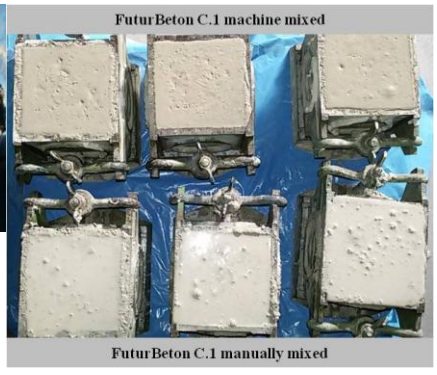
name	dimensions			mass	bulk density	maximum load	strength	failure
	l	b	h	[g]	[g]	[kN]	[MPa]	
1	100	101	100	2480	2460	481.3	47.7	
2	100	101	100	2480	2460	476.2	47.1	
3	100	100	100	2460	2460	482.6	48.3	
mean value					2460		47.7	
standard deviation					---		0.6	

To achieve these values, intensive mixing with e.g. pan mixers is necessary. Manually mixed concrete needs more water according to a suitable workability.

manually mixed specimen	
24h	2 d
not measureable	25.9 MPa

After 2 d the manually mixed specimen reached a compressive strength of 25.9 MPa, which is just about half of the compressive strength of machine mixed FuturBeton after 24h.

Manually mixed FuturBeton C.1 with original water/cement-ratio (more water necessary)



RUNKEL FERTIGTEILBAU GmbH WERK WILNSDORF BETONPRÜFSTELLE E

INDUSTRIESTRASSE 9, 57234 WILNSDORF - NIEDERDIELFEN

PRÜFSTELLE E VERTRETEN DURCH: DIPL.-ING. FRANK SIEDENSTEIN

RUNKEL

Prüfprotokoll

Seite: 1

Datum 18.02.2016

Auftragsname	ZOZ GmbH

Druckversuch **EN 12390-3** **Prüfkörper : Würfel** **100x100x100**

Serie Bezeichnung	1	Prüfer	Stein
Herstelldatum	11.02.2016 / 12:30	Alter	7 Tage 00:56
Prüfdatum	18.02.2016 / 13:26		
Betonklasse	C50/60		

FuturBeton after 7 days

Bezeichnung	Abmessungen [mm]			Masse	Rohdichte	Höchstkraft	Festigkeit	Bruchtyp
	l	b	h	[g]	[kg/m³]	[kN]	[MPa]	
1	100	101	100	2440	2420	1058,0	104,8	
2	100	100	101	2480	2460	1105,0	110,5	
3	100	100	101	2480	2460	1061,0	106,1	
Mittelwert					2440		107,1	
Standardabweichung					20		3,0	

Druckversuch **EN 12390-3** **Prüfkörper : Würfel** **100x100x100**

Serie Bezeichnung	2	Prüfer	Stein
Herstelldatum	17.02.2016 / 12:30	Alter	1 Tage 01:04
Prüfdatum	18.02.2016 / 13:34		
Betonklasse			

FuturBeton after 1 day

Bezeichnung	Abmessungen [mm]			Masse	Rohdichte	Höchstkraft	Festigkeit	Bruchtyp
	l	b	h	[g]	[kg/m³]	[kN]	[MPa]	
1	100	101	100	2480	2460	481,3	47,7	
2	100	101	100	2480	2460	476,2	47,1	
3	100	100	100	2460	2460	482,6	48,3	
Mittelwert					2460		47,7	
Standardabweichung					....		0,6	