

Daracem[®] Family of High-Range Water Reducers

Flexibility of Superplasticizers

Daracem[®] High-Range Water-Reducing Admixtures provide flexibility to attain high strength, high fluidity or reduced cement content, while maintaining or increasing strength, durability, and other hardened concrete qualities. This technical bulletin demonstrates how Daracem superplasticizers can be used to optimize the performance of concrete mixes.

The following chart depicts the results obtained from four concrete mixes of modified mix proportions.

1. "Control" mix containing no superplasticizer.
2. Same mix dosed with Daracem for high water reduction with equal slump.
3. Identical mix but with superplasticizer added to increase slump for greater workability.
4. Water/cement ratio and slump equal to control, but with decreased cement content.

Mix Number	1	2	3	4
Mix Descriptions	Control Mix	High Strength	Flowing Mix	Cement Compensated Mix
Cement, kg/m ³ (lbs/yd ³)	356 (600)	356 (600)	356 (600)	267 (450)
Fine agg, kg/m ³ (lbs/yd ³)	712 (1200)	742 (1250)	771 (1300)	845 (1425)
Coarse agg, kg/m ³ (lbs/yd ³)	1127 (1900)	1216 (2050)	1068 (1800)	1187 (2000)
Water, kg/m ³ (lbs/yd ³)	178 (300)	133 (225)	178 (300)	133 (225)
Daracem, mL/100 kg (oz/100 lbs)	0 (0)	978 (15)	978 (15)	978 (15)
W/C ratio	0.50	0.38	0.50	0.50
Slump, mm (in.)	114 (4.50)	127 (5.00)	241 (9.50)	127 (5.00)
Compressive Strength, MPa (psi)				
1 day, psi	9.7 (1410)	19.2 (2790)	11.9 (1720)	10.5 (1520)
2 day, psi	19.0 (2750)	29.3 (4250)	21.9 (3170)	20.0 (2900)
7 day, psi	28.3 (4100)	39.4 (5710)	31.2 (4530)	29.5 (4280)
28 day, psi	35.3 (5120)	46.8 (6790)	38.3 (5560)	36.8 (5330)

Note: Mix proportions given are saturated surface-dry.

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