

Mix Design Optimized for M70 Grade of concrete

Basic Materials	Mix-Design with OPC 53	With Dalima Infrageen (DIG)
Cement	460	450
FLYASH	120	0
GGBS	40	0
W / C Ratio	0.24	0.28
Water	149	128
AGG 40mm	0	0
AGG 20mm	531	310
AGG 10mm	436	680
Coarse Sand	746	880
Admixture doses	1.10%	0.50%

Result obtained M70 Grade of concrete

	With OPC 53	With Dalima Infrageen (DIG)
Admixture Dose	1.10%	0.50%
Fresh Concrete Properties: (Workability)		
(a) Initial	690 MM	520 MM
(b) 30 Min	680 MM	520 MM
(c) 60 min	660 MM	500 MM
(d) 90 Min	650 MM	480 MM
(e) 120 Min	620 MM	450 MM
(f) 150 Min		
(g) 180 Min		
Hardened Concrete Properties: (Compressive strength) (in MPa)		
(i) 1 Day		
(ii) 3 days	28	46
(iii) 7 days	42	59
(iv) 28 days	79	83

Hardened Concrete Properties: (Flexural Strength) (in MPa)		
(i) 1 Day	NA	NA
(ii) 3 days	NA	NA
(iii) 7 days	NA	NA
(iv) 28 days	NA	NA

Cost benefit analysis for a standard Mix of M70

Approximate Cost Benefit analysis with Dalma Infrageen Cement

Ingredients	Make	Rate per Kg	With OPC 53		With Dalma Infrageen Cement (DIG)	
			Quantity per CuM	Cost /Cum	Quantity Per CuM	Cost per Cum
Cement (OPC 53)	Repute Make	6.2	460	2852	0	0
Cement (DIG)	Dalima Infrageen	9	0	0	450	4050
FLYASH	Repute Make	2.00	120	240	0	0
GGBS	Repute Make	21.00	40	840	0	0
AGG 40mm	Natural	0	0	0	0	0
AGG 20mm	Natural	0.85	531	451.35	310	263.5
AGG 10mm	Natural	0.85	436	370.6	680	578
Coarse Sand	Natural	0.30	746	223.8	880	264
Admixture with OPC 53	Basf 8658	125	6.82	852.5	0	0
Admixture with DIG	Basf 8658	125	0.0	0.0	2.25	281
			Rs	5830.25	Rs	5436.75
Net Savings / cum (A - B) =			(5830.25-5436.75)	394	Per CuM	

Note:

Name of Admixture : Basf