

APPENDIX 1

PROPERTIES OF MATERIALS

Table A 1.1 Physical properties of Portland Pozzolana cement

Test particulars	Results obtained	Standards of IS 1489(Part 1) 1991
Specific gravity	3.15	3.15
Fineness (by sieve analysis) %	4.60	Less than 10
Consistency (%)	29.00	-
Initial setting time (minutes)	110.00	Minimum 30
Final setting time (minutes)	230.00	Less than 600
Compressive strength at 3 days (N/mm ²)	29.90	Minimum 27
Compressive strength at 7 days (N/mm ²)	40.15	-
Compressive strength at 28 days (N/mm ²)	54.05	-

Table A 1.2 Chemical composition of Portland Pozzolana Cement

Chemical Composition	% of Composition
Silica	24.29
Alumina	5.86
Iron Oxide	3.88
Magnesium Oxide	0.89
Calcium Oxide	59.63
Loss on ignition	3.80

Table A 1.3 Physical properties of coarse aggregate (IS 2386 – 1963)

Description	Values
Specific gravity	2.73
Bulk density (kg/m ³)	1653.06
Surface moisture (%)	0.086
Water absorption (%)	1.00
Fineness modulus	6.98

Table A 1.4 Physical properties of fine aggregate (IS 2386 – 1963)

Designations	Specific gravity	Fineness modulus	Surface moisture (%)	Water absorption (%)	Surface index value	Zone
A	2.59	2.21	0.11	0.09	1.13	III
B	2.57	2.23	0.35	0.08	1.12	III
C	2.50	2.27	0.67	0.06	1.11	II
D	2.50	2.41	0.91	0.08	1.10	I
E	2.50	2.39	1.06	0.12	1.08	I
F	2.51	2.38	1.31	0.10	1.07	I
G	2.61	2.60	1.66	0.01	1.06	I
H	2.60	2.50	1.80	0.01	1.04	I
I	2.59	2.63	2.26	0.02	1.02	I
J	2.52	2.52	2.41	0.05	1.00	I
K	2.56	2.51	4.44	0.11	0.98	I

Table A 1.5 Chemical Composition of varying proportions of fine aggregate

I. D	Silica (%)	Calcium oxide (%)	Magnesium oxide (%)	Iron oxide (%)	Aluminium oxide (%)	Loss on ignition (%)
A	98.43	0.541	Nil	0.13	Nil	0.05
B	98.23	0.51	Nil	0.15	Nil	0.05
C	98.00	0.46	Nil	0.29	0.18	0.09
D	95.98	0.40	Nil	0.41	0.34	0.11
E	93.42	0.42	Nil	0.64	0.36	0.11
F	93.01	0.24	Nil	0.84	0.43	0.11
G	92.79	0.16	Nil	0.94	0.52	0.11
H	92.64	0.11	Nil	1.04	0.70	0.14
I	92.14	0.09	Nil	1.24	0.91	0.14
J	92.00	0.08	Nil	1.51	0.99	0.15
K	91.04	0.08	0.04	2.84	1.98	0.19