PORTLAND CEMENT CEM I 52.5 N			
DESCRIPTION		LIMITATIONS BS EN 197 - 1 (2011) and ES 4756 - 1 (2022)	**OBTAINED RESULTS**
PHYSICAL TEST			
Soundness (Expansion) (mm)		≤ 10 MAX.	**1.0**
Fineness , Blaine (cm^2/g)		..	**3650**
Insoluble Residue (%)		≤ 5.0	**3.2**
Initial setting time (minute)		≥ 45 MIN.	**175**
Water consistency (%)		..	**26**
Compressive Strength (Mpa)	2 days	≥ 20 MIN.	**22.5**
	28 days	≥ 52.5 MIN.	**55.0**
CHEMICAL ANALYSIS			
Silicone Dioxide (SiO2) %		..	**19.77**
Aluminium Oxide (Al2O3) %		..	**5.01**
Ferric Oxide (Fe2O3) %		..	**3.44**
Calcium Oxide (CaO) %		..	**61.78**
Magnesium Oxide (MgO) %		..	**1.15**
Sulfer Trioxide (SO3) %		≤ 4.0	**3.55**
Sodium Oxide (Na2O) %		..	**0.37**
Potassium Oxide (K2O) %		..	**0.23**
Chloride (Cl) %		≤ 0.1	**0.05**
Loss On Ignition (LOI) %		**≤ 5.0**	**3.83**

PORTLAND CEMENT
CEM I 42.5N

DESCRIPTION		LIMITATIONS BS EN 197 - 1 (2011) and ES 4756 - 1 (2022)	OBTAINED RESULTS
PHYSICAL TEST			
Soundness (Expansion) (mm)		≤ 10	0.0
Fineness , Blaine (cm^2/g)		..	3600.0
Insoluble Residue (%)		≤ 5.0	3.2
Initial setting time (minute)		≥ 60	165.0
Water consistency (%)		..	28.1
Compressive Strength (Mpa)	2 days	≥ 10	19.0
	28 days	≥ 42.5	48.0
CHEMICAL ANALYSIS			
Silicone Dioxide (SiO_2) %		..	19.50
Aluminium Oxide (Al_2O_3) %		..	4.89
Ferric Oxide (Fe_2O_3) %		..	3.64
Calcium Oxide (CaO) %		..	36.10
Magnesium Oxide (MgO) %		..	1.15
Sulfer Trioxide (SO_3) %		≤ 3.5	3.30
Sodium Oxide (Na_2O) %		..	0.33
Potassium Oxide (K_2O) %		..	0.24
Chloride (Cl) %		≤ 0.1	0.05
Loss On Ignition		≤ 5	3.10
Hexavalent Chromium (PPM)		≤ 2	1.80

PORTLAND CEMENT CEM II A-P 32.5N			
DESCRIPTION		LIMITATIONS BS EN 197 - 1 (2011) and ES 4756 - 1 (2022)	**OBTAINED RESULTS**
PHYSICAL TEST			
Soundness (Expansion) (mm)		**≤ 10**	**1.0**
Fineness , Blaine (cm^2/g)		**..**	**3950**
Initial setting time (minute)		**≥ 75**	**165**
Water consistency (%)		**..**	**28**
Compressive Strength (Mpa)	2 days	**≥ 16**	**17.0**
	28 days	**≥ 32.5**	**37.0**
CHEMICAL ANALYSIS			
Silicone Dioxide (SiO_2) %		**..**	**21.19**
Aluminium Oxide (Al_2O_3) %		**..**	**6.15**
Ferric Oxide (Fe_2O_3) %		**..**	**6.16**
Calcium Oxide (CaO) %		**..**	**54.45**
Magnesium Oxide (MgO) %		**..**	**1.68**
Sulfer Trioxide (SO_3) %		**≤ 3.5**	**3.20**
Sodium Oxide (Na_2O) %		**..**	**0.85**
Potassium Oxide (K_2O) %		**..**	**0.27**
Chloride (Cl) %		**≤ 0.1**	**0.03**

CLINKER SPECIFICATION				
	MIN	MAX	TYPICAL	RATIO
C3S	53	57	55.00	%
C2S	17	21	19.00	%
C4AF	10.5	12.5	11.50	%
C3A	7.5	8.5	8.00	%
F.L	1.8	2.2	2.00	%
LOI	0.2	0.4	0.30	%
IR	0.1	0.3	0.20	%
MgO	0.8	1.2	1.00	%
SO3	1.3	1.6	1.45	%
CL	0.01	0.04	0.03	%
Alkalis Equ.	0.55	0.65	0.60	%