Chemical Composition and Physical Properties of Ordinary Portland cement
[CEM I 52.5N]

EL-ARISH CEMENT COMPANY

ACCREDITED® Management Systems Certification Body MSCB-113

G-CERT SYSTEM SERVICE ISO 9001.2015 Certi No: GIEG-0057-QC

ES

NO	DESCRIPTION (EN 197-1 CEM I 52.5N)		UNIT	VALUE	RANGE
CHEMICAL COMPOSITION					
1	Silicon Dioxide	SiO_2	%	19.85	19.70-20.90
2	Aluminum Oxide	AL_2O_3	%	5.70	5.55-5.90
3	Ferric Oxide	Fe_2O_3	%	3.70	3.60 - 4.0
4	Calcium Oxide	CaO	%	64.5	63.80-66.00
5	Magnesium Oxide (Max 5.0)	MgO	%	1.01	0.7 – 3.0
6	Sulfur Trioxide (Max 4.0)	SO_3<4	%	2.85	2.5-3.5
7	Chloride < 0.10	Cl^-<0.1	%	0.05	0.02 - 0.08
8	Insoluble residue (Max 5.0)	I.R< 5	%	0.49	0.30 - 1.5
9	Loss On ignition	L.O.I< 5	%	2.28	1.5 - 3.0
10	Free-Lime < 2	F-CaO< 2	%	1.26	0.6 – 1.8
11	Chromium Hexavalent (Max 2.0)	Cr VI< 2	ppm	1.5	0.7 - 1.8
12	Alkali Equivalent	Na_2O equivalent	%	0.65	0.50 - 0.75
13	Sieve 45		%	6.0	4.0 – 10.0
14	Sieve 90		%	0.0	0.00- 0.2
PHYSICS TEST					
1	Fineness (Blaine)		Cm2/g	3370	3200-3800
2	Water consistency		%	28.2	26.5-30.0
3	Initial setting time	Min 45	Minutes	150	110- 170
4	Final setting time		Minutes	220	180 - 300
5	2Day (Compressive Strength)	Min 20	MPa	26	20-30
6	28Day (Compressive Strength))	Min 52.5	MPa	56	54-60
7	Soundness	Max 10mm	mm	1.15	0.6 – 4.0

Chemical Composition and Physical Properties of Ordinary Portland cement [CEM II/A-L 42.5N]

EL-ARISH CEMENT COMPANY

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G-CERT SYSTEM SERVICE ISO 9001.2015 Certi No: GIEG-0057-QC

ES

NO	DESCRIPTION (EN 197-1 CEM II/A-L 42.5N)		UNIT	VALUE	RANGE
CHEMICAL COMPOSITION					
1	Silicon Dioxide	SiO_2	%	17.15	16.0 - 20.0
2	Aluminum Oxide	AL_2O_3	%	4.80	4.60-5.4
3	Ferric Oxide	Fe_2O_3	%	3.3	3.3 - 3.8
4	Calcium Oxide	CaO	%	62.70	62.0-67
5	Magnesium Oxide (Max 5.0)	MgO	%	0.80	0.7 – 2.2
6	Sulfur Trioxide (Max 3.5.0)	SO_3<3.5	%	2.25	2.0-3.0
7	Chloride < 0.10	Cl^-<0.1	%	0.06	0.02 - 0.08
8	Insoluble residue (Max 5.0)	I.R< 5	%	1.0	0.30 - 1.5
9	Loss On ignition		%	6.6	6.0 - 8.0
10	Free-Lime < 2	F-CaO< 2	%	1.4	0.6 – 1.8
11	Chromium Hexavalent (Max 2.0)	Cr VI< 2	ppm	1.3	0.7 - 1.8
12	Alkali Equivalent	Na_2O equivalent	%	0.65	0.50 - 0.75
13	Sieve 45		%	11	7.0 – 12.0
14	Sieve 90		%	0.1	0.00- 0.2
PHYSICS TEST					
1	Fineness (Blaine)		Cm2/g	4100	3500-4500
2	Water consistency		%	26.1	24.5-30.0
3	Initial setting time	Min 60	Minutes	120	110- 150
4	Final setting time		Minutes	175	160 - 220
5	2Day (Compressive Strength)	Min 10	MPa	16	10-20
6	28Day (Compressive Strength))	Min 42.5	MPa	47	44.0 -52.0
7	Soundness	Max 10mm	mm	1.15	0.6 – 4.0

N.B: The cement certificate of CEM II/A-L 42.5N is from lab trial and theoretical calculation

Chemical Composition and Physical Properties of Ordinary Portland cement
[CEM I 42.5R]

EL-ARISH CEMENT COMPANY

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ISO 9001.2015
Certi No: GIEG-0057-QC

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NO	DESCRIPTION (EN 197-1 CEM I 42.5R)		UNIT	VALUE	range
	CHEMICAL COMPOSITION				
1	Silicon Dioxide	SiO_2	%	19.75	19.0 - 20.0
2	Aluminum Oxide	AL_2O_3	%	5.75	5.2 -5.70
3	Ferric Oxide	Fe_2O_3	%	3.68	3.3 - 3.8
4	Calcium Oxide	CaO	%	64.10	63.0- 64.5
5	Magnesium Oxide (Max 5.0)	MgO	%	0.92	0.7 – 2.2
6	Sulfur Trioxide (Max 4.0)	SO_3<4	%	2.80	2.3 - 3.0
7	Chloride < 0.10	Cl^-<0.1	%	0.05	0.02 - 0.08
8	Insoluble residue (Max 5.0)	I.R< 5	%	0.51	0.30 - 1.5
9	Loss On ignition	L.O.I< 5	%	3.0	2.5 - 4.0
10	Free-Lime < 2	F-CaO< 2	%	1.40	0.6 – 1.8
11	Chromium Hexavalent (Max 2.0)	Cr VI< 2	ppm	1.6	0.7 - 1.8
12	Alkali Equivalent	Na_2O equivalent	%	0.65	0.50 - 0.75
13	Sieve 45		%	9.0	7.0 – 12.0
14	Sieve 90		%	0.00	0.00- 0.2
	PHYSICS TEST				
1	Fineness (Blaine)		Cm2/g	3400	3200-3500
2	Water consistency		%	28.1	26.5-29.0
3	Initial setting time	Min 60	Minutes	145	120 - 150
4	Final setting time		Minutes	205	180 - 220
5	2Day (Compressive Strength)	Min 20	MPa	25	21 - 27
6	28Day (Compressive Strength))	Min 42.5	MPa	49	44.0 -52
7	Soundness	Max 10mm	mm	1.15	0.6 – 4.0

Chemical Composition and Physical Properties of Limestone cement

[CEM II/B-L 32.5 N]

EL-ARISH CEMENT COMPANY

ACCREDITED Management Systems Certification Body MSCB-113

G-CERT SYSTEM SERVICE ISO 9001.2015 Certi No: GIEG-0057-QC

ES

NO	DESCRIPTION (EN 197-1 CEM II/B-L 32.5N)		UNIT	VALUE	RANGE
CHEMICAL COMPOSITION					
1	Silicon Dioxide	SiO_2	%	15.45	12.5-16.0
2	Aluminum Oxide	AL_2O_3	%	4.42	4.3-5.0
3	Ferric Oxide	Fe_2O_3	%	3.11	3.0-4
4	Calcium Oxide	CaO	%	61.76	60.5-64
5	Magnesium Oxide (Max 5.0)	MgO	%	0.90	0.6-2.0
6	Sulfur Trioxide (Max 3.5)	SO_3<3.5	%	2.15	2.0-3.0
7	Chloride < 0.10	Cl^-<0.1	%	0.04	0.02-0.08
8	Insoluble residue (Max 5.0)	I.R< 5	%	0.55	0.3-2.5
9	Loss On ignition		%	12.22	10.0-14.5
10	Free-Lime < 2	F-CaO< 2	%	1.1	0.8-1.8
11	Chromium Hexavalent (Max 2.0)	Cr VI< 2	ppm	0.8	0.7 - 1.8
12	Alkali Equivalent	Na_2O equivalent	%	0.65	0.50 - 0.75
13	Sieve 45		%	12	9.0-14.0
14	Sieve 90		%	0.2	0.00- 0.8
PHYSICS TEST					
1	Fineness (Blaine)		Cm2/g	4275	4100-4800
2	Water consistency		%	25.2	24.5-27.0
3	Initial setting time	Min 75	Minutes	117	110- 170
4	Final setting time		Minutes	177	160-200
5	7Day (Compressive Strength)	Min 16	MPa	28.1	16-30
6	28Day (Compressive Strength))	32.5-52.5	MPa	38.9	34.0-45.0
7	Soundness	Max 10mm	mm	1	0.6 – 4.0