



Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT TYPE 1-325

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3055	Min 2900	Min 2800	390	1	SiO ₂	21.17	-	-	1692
2	Autoclave expansion	0.060	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.49	-	-	
3	Setting time					3	Fe ₂ O ₃	3.91	-	-	
3-1	Initial Time (min)	140	Min 70	Min 45	392	4	CaO	63.65	-	-	
3-2	Final time (hr)	3:35	Max 5	Max 6	392	5	MgO	1.36	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.57	Max 2.9	Max 3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.41	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	235	Min 150	Min 120	393	9	L.O.I	2.35	Max 2.5	Max 3	1692
4-4	7 Days	330	Min 220	Min 200	393	10	IR	0.44	Max 0.7	Max 0.75	
4-5	28 Days	430	Min 350 Max 510	Min 325 Max 525	393	11	F.CaO	1.50	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	53.5	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.7	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.3	-	-	





Shahroud Cement Company

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PORTLAND CEMENT TYPE 1-425

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3400	Min 2900	Min 2800	390	1	SiO ₂	21.19	-	-	1692
2	Autoclave expansion	0.035	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.47	-	-	
3	Setting time					3	Fe ₂ O ₃	3.94	-	-	
3-1	Initial Time (min)	125	Min 70	Min 45	392	4	CaO	63.47	-	-	
3-2	Final time (hr)	3:15	Max 5	Max 6	392	5	MgO	1.33	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.38	Max 2.9	Max 3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.39	-	-	1695
4-2	2 Day	205	Min 120	Min 100	393	8	K ₂ O	0.43	-	-	
4-3	3 Days	-	-	-	393	9	L.O.I	2.25	Max 2.9	Max 3	
4-4	7 Days	-	-	-	393	10	IR	0.41	Max 0.7	Max 0.75	1692
4-5	28 Days	475	Min 425 Max 625	Min 425 Max 625	393	11	F.CaO	1.40	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	53.2	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.9	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.2	-	-	





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PORTLAND CEMENT TYPE 1-525

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3600	Min 2900	Min 2800	390	1	SiO ₂	21.14	-	-	1692
2	Autoclave expansion	0.028	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.46	-	-	
3	Setting time					3	Fe ₂ O ₃	3.94	-	-	
3-1	Initial Time (min)	115	Min 70	Min 45	392	4	CaO	63.34	-	-	
3-2	Final time (hr)	3:10	Max 5	Max 6	392	5	MgO	1.31	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.35	Max 2.9	Max 3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.39	-	-	1695
4-2	2 Day	212	Min 200	Min 200	393	8	K ₂ O	0.44	-	-	
4-3	3 Days	-	-	-	393	9	L.O.I	2.20	Max 2.9	Max 3	
4-4	7 Days	-	-	-	393	10	IR	0.32	Max 0.7	Max 0.75	1692
4-5	28 Days	530	Min 525	Min 525	393	11	F.CaO	1.36	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	53.2	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.8	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.2	-	-	





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PORTLAND CEMENT TYPE 2

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3155	Min 2900	Min 2800	390	1	SiO ₂	21.11	Min 20.5	Min 20	1692
2	Autoclave expansion	0.046	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.48	Max 5	Max 6	
3	Setting time					3	Fe ₂ O ₃	3.91	Max 5	Max 6	
3-1	Initial Time (min)	135	Min 70	Min 45	392	4	CaO	63.36	-	-	
3-2	Final time (hr)	3:20	Max 5	Max 6	392	5	MgO	1.37	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.58	Max 2.9	Max 3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.43	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	240	Min 170	Min 100	393	9	L.O.I	2.42	Max 2.9	Max 3	1692
4-4	7 Days	340	Min 250	Min 175	393	10	IR	0.41	Max 0.7	Max 0.75	
4-5	28 Days	435	Min 350	Min 315	393	11	F.CaO	1.23	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	52.8	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	21.0	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A≤8	5.3	-	-	





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PORTLAND CEMENT TYPE 3

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3650	Min 2900	Min 2800	390	1	SiO ₂	21.08	-	-	1692
2	Autoclave expansion	0.025	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.46	-	-	
3	Setting time					3	Fe ₂ O ₃	3.94	-	-	
3-1	Initial Time (min)	110	Min 70	Min 45	392	4	CaO	63.37	-	-	
3-2	Final time (hr)	3:00	Max 5	Max 6	392	5	MgO	1.31	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.32	Max 3.2	Max 3.5	
4-1	1 Day	166	Min 130	Min 125	393	7	Na ₂ O	0.37	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.45	-	-	
4-3	3 Days	290	Min 250	Min 220	393	9	L.O.I	2.17	Max 2.9	Max 3	
4-4	7 Days	-	-	-	393	10	IR	0.34	Max 0.7	Max 0.75	1692
4-5	28 Days	-	-	-	393	11	F.CaO	1.34	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	53.9	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.1	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.2	Max 10	Max 15	





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PORTLAND CEMENT TYPE 5

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 389	Test Method
1	Fineness by Blaine (cm ² /gr)	3155	Min 2900	Min 2800	390	1	SiO ₂	21.3	-	-	1692
2	Autoclave expansion	0.035	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.34	-	-	
3	Setting time					3	Fe ₂ O ₃	4.35	-	-	
3-1	Initial Time (min)	135	Min 70	Min 45	392	4	CaO	63.31	-	-	
3-2	Final time (hr)	3:40	Max 5	Max 6	392	5	MgO	1.37	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.12	Max 2.2	Max 2.3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.36	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.44	-	-	
4-3	3 Days	230	Min 150	Min 85	393	9	L.O.I	2.15	Max 2.9	Max 3	1692
4-4	7 Days	325	Min 200	Min 150	393	10	IR	0.34	Max 0.7	Max 0.75	
4-5	28 Days	430	Min 300	Min 270	393	11	F.CaO	1.23	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	54.4	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.0	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	4.1	Max 4.5	Max 5	





Shahroud Cement Company

QUALITY CONTROL REPORT

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PORTLAND COMPOSITE CEMENT TYPE A-32.5

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 11571-1	Test Method	NO.	Component	Result (%)	Factory standard	ISIRI 11571-1	Test Method
1	Fineness by Blaine (cm ² /gr)	3096	Min 3000	Min3000	390	1	SiO ₂	21.15	-	-	1692
2	Autoclave expansion	0.049	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.52	-	-	
3	Setting time					3	Fe ₂ O ₃	3.92	-	-	
3-1	Initial Time (min)	140	Min 70	Min 75	392	4	CaO	63.42	-	-	
3-2	Final time (hr)	3:40	Max 5	Max 6	392	5	MgO	1.39	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.67	Max 3.2	Max 3.5	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.41	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.49	-	-	
4-3	3 Days	-	-	-	393	9	CL-	0.015	Max0.1	Max0.1	6443
4-4	7 Days	285	Min 220	Min 160	393	10	IR	0.45	-	-	1692
4-5	28 Days	375	Min 350	Min 325	393	11	F.CaO	1.51	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	52.2	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	21.6	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.4	-	-	





Shahroud Cement Company

QUALITY CONTROL REPORT

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PORTLAND CEMENT TYPE M400

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	GOST 10178-85	NO.	Component	Result (%)	Factory standard	ISIRI 389	GOST 10178-85
1	Fineness by Blaine (cm ² /gr)	3155	Min 2900	Min 2800	Min 2800	1	SiO ₂	21.11	Min 20.5	Min 20	-
2	Autoclave expansion	0.047	Max 0.6	Max 0.8	-	2	Al ₂ O ₃	4.48	Max 5	Max 6	-
3	Setting time					3	Fe ₂ O ₃	3.91	Max 5	Max 6	-
3-1	Initial Time (min)	130	Min 70	Min 45	Min 45	4	CaO	63.36	-	-	-
3-2	Final time (hr)	3:25	Max 5	Max 6	Max 10	5	MgO	1.34	Max 2.5	Max 5	Max 5
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.55	Max 2.9	Max 3	Max 3
4-1	1 Day	-	-	-	-	7	Na ₂ O	0.42	-	-	-
4-2	2 Day	-	-	-	-	8	K ₂ O	0.46	-	-	-
4-3	3 Days	240	Min 170	Min 100	-	9	L.O.I	2.40	Max 2.9	Max 3	-
4-4	7 Days	335	Min 250	Min 175	-	10	IR	0.41	Max 0.7	Max 0.75	-
4-5	28 Days	438	Min 350	Min 315	Min 400	11	F.CaO	1.23	-	-	-
5	Heat of hydration (cal/gr)					12	C ₃ S	52.9	-	-	-
5-1	3 Days	-	-	-	-	13	C ₂ S	20.9	-	-	-
5-2	28 Day	-	-	-	-	14	C ₃ A	5.3	-	-	Max 8





Shahroud Cement Company

QUALITY CONTROL REPORT

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PORTLAND CEMENT TYPE M500

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	ISIRI 389	GOST 10178-85	NO.	Component	Result (%)	Factory standard	ISIRI 389	GOST 10178-85
1	Fineness by Blaine (cm ² /gr)	3500	Min 2900	Min 2800	Min 2800	1	SiO ₂	21.14	-	-	-
2	Autoclave expansion	0.031	Max 0.6	Max 0.8	-	2	Al ₂ O ₃	4.46	-	-	-
3	Setting time					3	Fe ₂ O ₃	3.94	-	-	-
3-1	Initial Time (min)	125	Min 70	Min 45	Min 45	4	CaO	63.34	-	-	-
3-2	Final time (hr)	3:15	Max 5	Max 6	Max 10	5	MgO	1.35	Max 2.5	Max 5	Max 5
4	Compressive Strength (Kg/cm²)					6	SO ₃	2.36	Max 2.9	Max 3	Max 3
4-1	1 Day	-	-	-	-	7	Na ₂ O	0.38	-	-	-
4-2	2 Day	210	Min 200	Min 200	-	8	K ₂ O	0.46	-	-	-
4-3	3 Days	-	-	-	-	9	L.O.I	2.27	Max 2.9	Max 3	-
4-4	7 Days	-	-	-	-	10	IR	0.40	Max 0.7	Max 0.75	-
4-5	28 Days	530	Min 525	Min 525	Min 500	11	F.CaO	1.37	-	-	-
5	Heat of hydration (cal/gr)					12	C ₃ S	53.2	-	-	-
5-1	3 Days	-	-	-	-	13	C ₂ S	20.8	-	-	-
5-2	28 Day	-	-	-	-	14	C ₃ A	5.2	-	-	Max 8

