



Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT TYPE 1-325 (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO 389	Test Method
1	Fineness by Blaine (cm ² /gr)	2800	Min 2900	Min2600 Max3600	390	1	SiO ₂	21.17	-	-	1692
2	Autoclave expansion	0.06	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 (min)	220	Max 300	Max375	392	5	MgO	1.6	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.57	Max 2.9	Max 3	1695
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.41	-	-	
4-2	2 Day	-	-	-	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	200	Min 150		393	9	L.O.I	2.9	Max2.95	Max 3	
4-4	7 Days	320	Min 220	Min 200	393	10	IR	0.65	Max 0.1	Max1.5	
4-5	28 Days	380	Min 350 Max 510	Min 325 Max 525	393	11	F.CaO	1.5	-	-	1692
5	Heat of hydration (cal/gr)					12	C ₃ S	53.2	-	-	
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 (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO389	Test Method	NO.	Component	Result (%)	Factory standard	INSO389	Test Method
1	Fineness by Blaine(cm ² /gr)	3200	Min 2900	Min2600M ax3600	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 (min)	200	Max 300	Max 375	392	5	MgO	1.6	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.55	Max 2.8	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	275	-	-	393	9	L.O.I	2.4	Max 2.9	Max 3	1692
4-4	7 Days	370	-	-	393	10	IR	0.5	Max0.9	Max1.5	
4-5	28 Days	475	Min 425 Max 625	Min 425 Max 625	393	11	F.CaO	1.5	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	53.6	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.9	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.2	-	-	





Shahroud Cement Company

QUALITY CONTROL REPORT

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PORTLAND CEMENT TYPE 1-525 (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO389	Test Method
1	Fineness by Blaine(cm ² /gr)	3600	Min 2900	Min2600	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)	120	Min 70	Min 45	392	4	CaO	63.34	-	-	
3-2	Final time (min)	195	Max 300	Max 375	392	5	MgO	1.6	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.5	Max 2.9	Max 3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.39	-	-	1695
4-2	2 Day	225	Min 200	Min 200	393	8	K ₂ O	0.44	-	-	
4-3	3 Days	330	-	-	393	9	L.O.I	1.60	Max 2.6	Max 3	1692
4-4	7 Days	400	-	-	393	10	IR	0.48	Max0.8	Max1.5	
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	53.6	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	20.8	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.1	-	-	





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT TYPE 2-325 (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO 389	Test Method
1	Fineness by Blaine(cm ² /gr)	2700	Min 2600	Min2600	390	1	SiO ₂	21.11	Max 20.5		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 (min)	215	Max 300	Max 375	392	5	MgO	1.37	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					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	195	-	-	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	225	Min 170		393	9	L.O.I	2.85	Max2.9	Max 3	1692
4-4	7 Days	325	Min 250	Min 180	393	10	IR	0.55	Max0.1	Max1.5	
4-5	28 Days	375	Min 350	Min325 Max 525	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	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.3	-	-	





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT TYPE 2-425 (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO389	Test Method	NO.	Component	Result (%)	Factory standard	INSO 389	Test Method
1	Fineness by Blaine(cm ² /gr)	3155	Min 2900	Min2600	390	1	SiO ₂	21.11	Max 20.5		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)	130	Min 70	Min 45	392	4	CaO	63.36	-	-	
3-2	Final time (min)	200	Max300	Max375	392	5	MgO	1.37	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					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	205	205	Min 100	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	270	260		393	9	L.O.I	2.45	Max 2.9	Max 3	1692
4-4	7 Days	375	360		393	10	IR	0.5	Max0.8	Max1.5	
4-5	28 Days	465	Min 425	Min425 Max 625	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	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.3	-	-	





Shahroud Cement Company

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PORTLAND CEMENT TYPE 2-525 (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO 389	Test Method
1	Fineness by Blaine(cm ² /gr)	3600	Min3500	Min2600	390	1	SiO ₂	21.11	Max 20.5		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)	125	Min 70	Min 45	392	4	CaO	63.36	-	-	
3-2	Final time (min)	200	Max 300	Max 375	392	5	MgO	1.37	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					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	230	Min 230	Min200	393	8	K ₂ O	0.48	-	-	
4-3	3 Days	320	Min 300		393	9	L.O.I	2.30	Max 2.9	Max 3	1692
4-4	7 Days	400	Min 400		393	10	IR	0.45	Max0.8	Max1.5	
4-5	28 Days	530	Min530	Min 525	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	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.3	-	Max8	





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT TYPE 3-425 (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO389	Test Method
1	Fineness by Blaine(cm ² /gr)	3650	Min3500		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 (min)	190	Max300	Max375	392	5	MgO	1.31	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.4	Max 2.9	Max 3	
4-1	1 Day				393	7	Na ₂ O	0.37	-	-	1695
4-2	2 Day	220	210	Min 200	393	8	K ₂ O	0.45	-	-	
4-3	3 Days	320			393	9	L.O.I	2.17	Max 2.9	Max 3	1692
4-4	7 Days	410	-	-	393	10	IR	0.4	Max0.8	Max1.5	
4-5	28 Days	500	430	Max625 Min 425	393 393	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	10	Max15	





Shahroud Cement Company

QUALITY CONTROL REPORT

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PORTLAND CEMENT TYPE 5-425 HSR (High Sulfate Resisting) (2023)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO 389	Test Method	NO.	Component	Result (%)	Factory standard	INSO 389	Test Method
1	Fineness by Blaine(cm ² /gr)	35500	Min 3500	Min2600	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	-	Max 6.5	
3-1	Initial Time (min)	120	Min 70	Min 45	392	4	CaO	63.31	-	-	
3-2	Final time (min)	195	Max 300	Max 375	392	5	MgO	1.37	Max 2.5	Max 6	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.25	Max 2.3	Max 2.3	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.36	-	-	1695
4-2	2 Day	225	200	Min 100	393	8	K ₂ O	0.44	-	-	
4-3	3 Days				393	9	L.O.I	2.15	Max 2.9	Max 3	1692
4-4	7 Days				393	10	IR	0.35	Max0.7	Max1.5	
4-5	28 Days	500	450	Min 425 Max625	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	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	4.1	Max4.5	Max5	





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND LIMESTON CEMENT (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 4220	Test Method	NO.	Component	Result (%)	Factory standard	INSO 4220	Test Method
1	Fineness by Blaine(cm ² /gr)	3050	Min 3000	Min3000	390	1	SiO ₂	20.76	-	-	1692
2	Autoclave expansion	0.067	Max 0.6	Max 0.8	391	2	Al ₂ O ₃	4.36	-	-	
3	Setting time					3	Fe ₂ O ₃	3.78	-	-	
3-1	Initial Time (min)	130	Min 85	Min 75	392	4	CaO	63.75	-	-	
3-2	Final time (min)	210	Max 6	Max 8	392	5	MgO	1.48	Max2.5	Max 5	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.65	Max3.0	Max3.5	
4-1	1 Day	-	-	-	393	7	Na ₂ O	0.44	-	-	1695
4-2	2 Day	-	-	-	393	8	K ₂ O	0.49	-	-	
4-3	3 Days	215	Min130	Min 120	393	9	L.O.I	3.70	Max10	Max12	6443
4-4	7 Days	305	Min 220	Min 200	393	10	IR	0.6	-	-	1692
4-5	28 Days	390	Min 350	Min 330	393	11	F.CaO	1.5	-	-	
5	Heat of hydration (cal/gr)					12	C ₃ S	51.2	-	-	
5-1	3 Days	-	-	-	394	13	C ₂ S	17.1	-	-	
5-2	28 Day	-	-	-	394	14	C ₃ A	5.2	-	max8	





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND COMPOSIT CEMENT A-32.5R (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 11571-1	Test Method	NO.	Component	Result (%)	Factory standard	INSO 11571-1	Test Method
1	Fineness by Blaine(cm ² /gr)	3060	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 (min)	220	Max 5	Max 6	392	5	MgO	1.39	Max 2.5	Max 5	
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.67	Max 2.9	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	Max 0.1	Max 0.1	6443
4-4	7 Days	285	Min 220	Min 160	393	10	LOI	8	Max11	MaX12	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

ShCC-QF28/99.04

PORTLAND CEMENT TYPE M400 (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 389	GOST 10178-85	NO.	Component	Result (%)	Factory standard	INSO 389	GOST 10178-85
1	Fineness by Blaine(cm ² /gr)	3155	Min 2900		Min2800	1	SiO ₂	21.11	Min20.5	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 (min)	220	Max 300	Max 375	Max 10	5	MgO	1.34	Max 2.5		Max 5
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.55	Max 2.9		Max 3
4-1	1 Day	-	-	-	-	7	Na ₂ O	0.42	-	-	-
4-2	2 Day	205	-	-	-	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 3.5	-
4-4	7 Days	350	Min 250	-	-	10	IR	0.5	Max0.1	Max1.5	-
4-5	28 Days	460	Min 435	Min 425	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

ShCC-QF28/99.04

PORTLAND CEMENT TYPE M500 (2023)

PHYSICAL SPECIFICATION						CHEMICAL SPECIFICATION					
NO.	Test	Result	Factory standard	INSO 389	GOST 10178-85	NO.	Component	Result (%)	Factory standard	INSO 389	GOST 10178-85
1	Fineness by Blaine(cm ² /gr)	3500	Min 2900	-	Min2800	1	SiO ₂	21.14	-	-	-
2	Autoclave expansion	0.047	Max 0.6	-	-	2	Al ₂ O ₃	4.46	-	-	-
3	Setting time					3	Fe ₂ O ₃	3.94	-	-	-
3-1	Initial Time (min)	135	Min 70	-	Min 45	4	CaO	63.34	-	-	-
3-2	Final time (min)	210	Max 5	-	Max 10	5	MgO	1.35	Max 2.5	-	Max 5
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.56	Max 2.9	-	Max 3
4-1	1 Day	-	-	-	-	7	Na ₂ O	0.38	-	-	-
4-2	2 Day	205	Min 200	-	-	8	K ₂ O	0.46	-	-	-
4-3	3 Days	-	-	-	-	9	L.O.I	2.27	Max 2.9	-	-
4-4	7 Days	-	-	-	-	10	IR	0.42	Max0.8	-	-
4-5	28 Days	525	Min 505	-	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





Shahroud Cement Company

QUALITY CONTROL REPORT

ShCC-QF28/99.04

PORTLAND CEMENT M500 (2023)

Anti Sulfate, High Compressive Strength, HSR(High Sulfate Resisting)

PHYSICAL SPECIFICATION

CHEMICAL SPECIFICATION

NO.	Test	Result	Factory standard	INSO 389	GOST 22266-2013	NO.	Component	Result (%)	Factory standard	INSO 389	GOST 22266-2013
1	Fineness by Blaine(cm ² /gr)	3650	Min 3600	Min2800	Min2500	1	SiO ₂	21.3	-	-	-
2	Autoclave expansion	0.035	Max 0.6	-	-	2	Al ₂ O ₃	4.34	-	-	Max5
3	Setting time					3	Fe ₂ O ₃	4.00	-	-	-
3-1	Initial Time (min)	110	Min 70	Min 46	Min 45	4	CaO	63.31	-	-	-
3-2	Final time (min)	200	Max 5	Max 6	Max 10	5	MgO	1.37	Max 2.5	Max 5	Max 5
4	Compressive Strength (Kg/cm ²)					6	SO ₃	2.12	Max 2.45	Max 2.3	Max3.5
4-1	1 Day	-	-	-	-	7	Na ₂ O	0.36	-	-	-
4-2	2 Day	235	Min 200	-	-	8	K ₂ O	0.44	-	-	-
4-3	3 Days	340	-	-	-	9	L.O.I	1.50	Max 2.9	Max 3	-
4-4	7 Days	435	-	-	-	10	IR	0.45	Max0.8	Max 1.5	-
4-5	28 Days	520	510	-	Min 500	11	F.CaO	1.45	-	-	Max1.5
5	Heat of hydration (cal/gr)					12	C ₃ S	56.5	-	-	-
						13	C ₂ S	21	-	-	-
5-1	3 Days	-	-	-	-	14	C ₃ A	4.7	Max 5	Max 5	Max 5
5-2	28 Day	-	-	-	-	15	2C ₃ A+C ₄ AF	20.8	Max 21.5	Max 25	Max22

