

Portland Cement

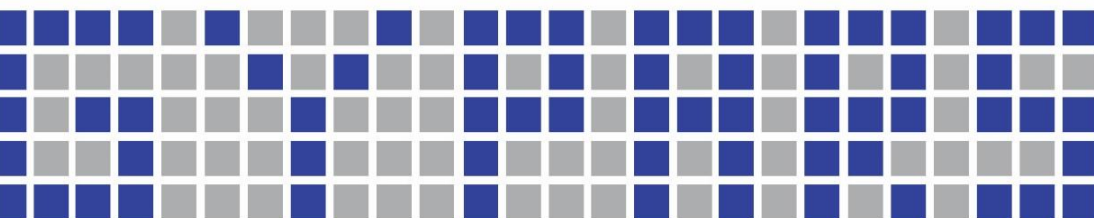
Type 2

Chemical Composition

		(%)				(%)	
		MIN	MAX			MIN	MAX
Silicon Dioxide	SiO ₂	20.50	22.0	Insoluble Residue	I.R.	0.1	0.7
Aluminium Oxide	Al ₂ O ₃	4.60	5.30	Free Lime	Free CaO	0.7	1.4
Ferric Oxide	Fe ₂ O ₃	3.50	4.00	Lime Saturation Factor	LSF	92	97
Calcium Oxide	CaO	63.00	65.00	Silica Module	SiM	2.4	2.6
Magnesium Oxide	MgO	1.50	2.50	Alomina Module	AIM	1.2	1.4
Sulphur Trioxide	SO ₃	1.50	2.50	Tricalcium Silicate	C ₃ S	50	60
Potassium Oxide	K ₂ O	0.5	0.70	Dicalcium Silicate	C ₂ S	15	25
Sodium Oxide	Na ₂ O	0.30	0.50	Tricalcium Aluminate	C ₃ A	5	8
Loss on Ignition	L.O.I	1.00	2.50	Tetracalcium Alumino Ferrite	C ₄ AF	10	12

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 North Sohrevardi, Tehran, Iran.





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Physical Properties

			MIN	MAX
Fineness	Blaine test	(cm ² /g)	2900	3200
Expansion	Autoclave	(%)	0.05	0.16
Setting time	Initial	(minute)	120	160
	Final	(minute)	170	310
Compressive Strength	After 3 days	(kg/cm ²)	200	250
	After 3 days	(kg/cm ²)	270	320
	After 3 days	(kg/cm ²)	350	420

$$LSF = 100 \times CaO / [(2.8 \times SiO_2) + (1.18 \times Al_2O_3) + (0.65 \times Fe_2O_3)]$$

$$C_3S = (4.071 \times CaO) - (7.6 \times SiO_2) - (6.718 \times Al_2O_3) - (1.43 \times Fe_2O_3) - (2.852 \times SO_3)$$

$$C_2S = (2.867 \times SiO_2) - (0.754 \times C_3S)$$

$$C_3A = (2.65 \times Al_2O_3) - (1.692 \times Fe_2O_3)$$

$$C_4AF = 3.043 \times Fe_2O_3$$

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