

# PHOENIX CEMENT

PORTLAND TYPE I/II/V (LA)



Phoenix Cement® Type I/II/V (LA) cement meets all chemical and physical requirements of the current ASTM Specification C 150 for Type I, II and V, low alkali cements and C 1157 for Type GU, MS, and HS. Type I/II/V (LA) is a general, all-purpose cement for use in most general construction applications.



## Strength

ASTM C 109 cement cubes made with Phoenix Cement® Type I/II/V (LA) produce compressive strengths far exceeding ASTM C 150 requirements. More importantly, compressive strengths of concrete made with Phoenix Cement® Type I/II/V (LA) are consistently competitive with those required by the marketplace.

## Set Time

Concrete set times made with Phoenix Cement® Type I/II/V (LA) are consistently competitive with that required by the marketplace.

## Durability

Phoenix Cement® Type I/II/V (LA) is safe for use in any application where protection against moderate (MS) or high sulfate (HS) attack is required. The (LA) designation indicates low alkali requirements of ASTM C 150 are met, thereby reducing the potential for damage due to alkali-aggregate reactivity.

## Uniformity

Consistency in strength, color, fineness, chemical composition and set time provides users of Phoenix Cement Type® I/II/V (LA) with consistently high-quality finished products.

Random market samples of Phoenix Cement® Type I/II/V (LA) are tested regularly at the Salt River Materials Group concrete laboratory to monitor performance in concrete. This understanding of end product performance enhances our ability to provide predictable and consistent product meeting customer requirements.

## Availability

Phoenix Cement® Type I/II/V (LA) is produced year-round at our Clarkdale manufacturing facility 100 miles north of the metro Phoenix area. Type I/II/V (LA) is available in bulk and sack at our Clarkdale Facility and in bulk at our Phoenix area terminals.

Salt River Materials Group has manufactured cement specifically designed for the Southwest since 1959. This experience enables Salt River Materials Group to continue to provide some of the highest quality cement products available. Salt River Materials Group is the commercial trade name for all marketing activities for Phoenix Cement Company and Salt River Sand and Rock.

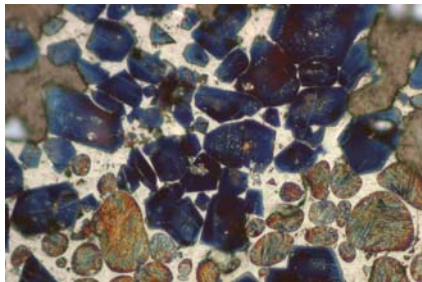
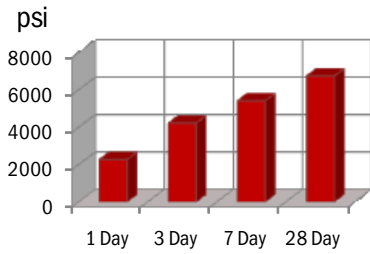


Clarkdale Shipping Facility

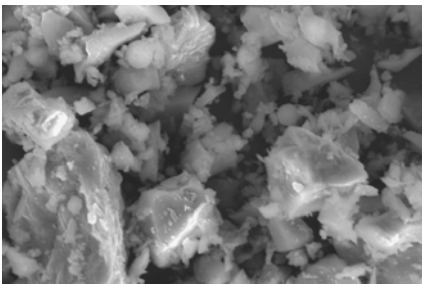


Cement Rotary Kiln, Clarkdale AZ

### ASTM C 109 Cube Strengths



Micrographs of cement crystal structure



Cement Particles 2500x

Chemical Analysis	Average Results	ASTM C 150 Specification Type II	ASTM C 150 Specification Type V
Calcium Oxide, CaO	63.83%	NA	NA
Silicon Dioxide, SiO <sub>2</sub>	21.30%	NA	NA
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	3.78%	6.00% Max	NA
Ferric Oxide, Fe <sub>2</sub> O <sub>3</sub>	3.75%	6.00% Max	NA
Magnesium Oxide, MgO	1.77%	6.00% Max	6.00% Max
Sulfur Trioxide, SO <sub>3</sub>	2.88%	3.00% Max	2.30% Max*
Loss on Ignition	1.34%	3.00% Max	3.00% Max
Insoluble Residue	0.30%	0.75% Max	0.75% Max
Alkalies (%Na <sub>2</sub> O+0.658% K <sub>2</sub> O)	0.42%	0.60% Max	0.60% Max
Sum of C <sub>3</sub> S+4.75C <sub>3</sub> A	77%	100% Max	NA
<b>Potential Composition</b>			
Tricalcium Silicate, C <sub>3</sub> S	59%	NA	NA
Tricalcium Aluminate, C <sub>3</sub> A	4%	8% Max	5% Max
Dicalcium Silicate, C <sub>2</sub> S	17%	NA	NA
<b>Physical Data</b>			
Fineness, Blaine cm <sub>2</sub> /gm	4000	4200 Max	2800 Min
Specific Gravity	3.15	NA	NA
Autoclave Expansion	0.01%	0.80% Max	0.80% Max
Air Content	7.00%	12.00% Max	12.00% Max
<b>Compressive Strength (psi)</b>			
1 Day	2260	NA	NA
3 Day	4220	1450 Min	1160 Min
7 Day	5420	2320 Min	2180 Min
28 Day	6740	NA	3050 Min
<b>Time of Setting, Vicat</b>			
Initial Set	1:46	0.45 Min	0.45 Min
Final Set	3:46	6:45 Max	6:45 Max
ASTM C 1038 (@14 days)	0.00%	0.020% Max*	0.020% Max*

## Mission Statement

Creating Opportunities and Solutions with Quality Products and Exceptional People

## Values

Profitability The Right Way... Integrity, Accountability, Excellence