

MIRACLE MORTA-LOK MASON'S HYDRATED LIME

TYPE S MORTA-LOK



- **ELASTICITY**
- **DURABILITY**
- **WATERPROOF**
- **GREATER EFFLORESCENCE CONTROL**
- **WORKABILITY**

***Preferred By
Professionals***

MIRACLE MORTA-LOK

Carmeuse's Miracle Morta-Lok is the clear choice of professional contractors and architects alike. Contractors can lay a course easily and quickly with the high sand-carrying mortar. Architects

specify Miracle Morta-Lok because they can count on its strength, bond and durability. All are provided with a cost savings over ordinary masonry cement.

FEATURES

BOND STRENGTH... In masonry construction the bond actually has two parts... flexural bond strength and extent of bond. Mortars should have sufficient strength to carry the loads imposed with regard to both tensile strength and compressive strength. There is considerable support to the theory that mortars should never be stronger than the masonry unit. With higher strength mortars, under certain conditions, the unit, rather than the mortar, is more likely to crack. Mortar was originally conceived as a means of bedding masonry units and bonding them together. Mortar serves masonry in the comparison capacity of a gasket or washer so that ideally some resilience is necessary to "cushion" deflection. Rigidity in mortar is incompatible with this concept.

High lime mortar, because of the degree of workability and high water retention, promotes excellent adhesion and extent of bond which produce watertight walls.

Considerable research has been completed on bond strengths. It has proven that PCL mortars have greater bond than other equivalent mortars.

ELASTICITY... A high lime content Miracle Morta-Lok mortar will adjust itself under structure and return to normal condition without injuring the bond. High cement mortars, on the other hand, tend to crack under stress because they are too brittle.

DURABILITY... Miracle Morta-Lok lime contains a self-healing element which can react to form an actual lime deposit, thus filling any mortar cracks which may appear. This autogenous healing occurs in mortars that contain Type "S" lime.

WATERPROOF... In masonry cement both waterproofing and plasticity agents are added. With high lime mortars these characteristics are naturally present.

GREATER EFFLORESCENCE CONTROL ... Recent tests indicate the higher the proportion of lime in mortar, the lower the tendency toward efflorescence.

WORKABILITY... High lime content Miracle Morta-Lok mortars are easy to spread and provide well-filled joints. More bricks can be laid before tooling and the need for retempering is practically eliminated.

MIRACLE MORTA-LOK FACTS AND DATA

Table 1: SPECIFICATIONS

Mortar Type	Water Retention ASTM	Min. Avg Comp. Strength ASTM	Proportions by Volume		
			Portland Cement	Lime	Sand
M	75	2500	1	1/4	Not more than 3 times the sum volume of the cement and lime used.
S	75	1800	1	1/4 to 1/2	
N	75	750	1	1/2 to 1-1/4	
O	75	350	1	1-1/4 to 2-1/2	

Note: Miracle Morta-Lok lime far exceeds ASTM specifications. It complies with ASTM C-207-93 Type S hydrated lime for masonry purposes.

SUGGESTED MIXING INSTRUCTIONS

Morta-Lok is designed to be mixed directly into the mixing box or machine. First, charge the mixer with 5 to 6 gallons of potable water. Second, add one-third of the required amount of sand. Third, add the Miracle Morta-Lok and Portland cement and then add the remainder of sand. Add potable water and mix until desired consistency is obtained.

Table 2: TEST MIXES

Mortar Type			
O 1:2:9	N 1:1:6	S 1:1/2:9	M 1:1/4:3-3/4
1 part Portland cement Type 1	1 part Portland cement Type 1	1 part Portland cement Type 1	1 part Portland cement Type 1
2 parts Morta-Lok lime	1 part Morta-Lok lime	1/2 part Morta-Lok lime	1/4 parts Morta-Lok lime
9 parts masonry sand	6 parts masonry sand	9 parts masonry sand	3-3/4 parts masonry sand

Note: Morta-Lok hydrated lime, Type S meets or exceeds ASTM specifications C-207-92. Type 1, Portland cement meets ASTM specification C-150-92. Masonry sand meets ASTM specification C-144-91.

Table 3: TEST MIX PROPERTIES

Mortar Type	O	N	S	M
Water Retention-ASTM C-91 Initial Flow	108	114	110	111
Flow after Suction	96	94	109	89
Water Retention %	88.9	82.5	81.8	80.2
Compressive Strength ASTM C-109 7-Day Strength (psi)	722	1907	2698	3894
28-Day Strength (psi)	985	2289	3548	5184

MORTA-LOK MEETS THE NEED

There is a great deal of flexibility in specifying mixtures of Morta-Lok Type "S" hydrated lime and Portland cement for mortar. Because of this flexibility, the architect and the contractor can use a proper formula for a variety of masonry units under varying job conditions. They can also be assured that the mortar will have strength and durability including an ample safety factor in excess of standard design limits.

Table 4: GUIDE FOR THE SELECTION OF MASONRY MORTARS^A

Location	Building Segment	Mortar Type	
		Recommended	Alternative
Exterior, above grade	Load-bearing wall	N	S or M
	Non load-bearing wall	O ^B	N or S
	Parapet wall	N	S
Exterior, at or below grade	Foundation wall, retaining wall, manholes, sewers, pavements, walks and patios	S ^C	M or N ^C
Interior	Load-bearing wall	N	S or M
	Non-bearing partitions	O	N
Interior or Exterior	Tuck pointing	see X3	see X3

^A This table does not provide for many specialized mortar uses, such as chimney, reinforced masonry and acid-resistant mortars.

^B Type O mortar is recommended for used where the masonry is unlikely to be frozen when saturated, or unlikely to be subjected to high winds or other significant lateral loads. Type N or S mortar should be used in other cases.

^C Masonry exposed to weather in a nominally horizontal surface is extremely vulnerable to weathering. Mortar for such masonry should be selected with due caution.

Table 5: GUIDE FOR THE SELECTION OF TUCK POINTING MORTARS^A

Location	Mortar Type	
	Recommended	Alternative
Interior	O	K, N
Exterior, above grade exposed on one side, unlikely to be frozen when saturated, not subject to high wind or other significant lateral	O	N, K
Exterior, other than above	N	O

^A In some applications structural concerns may dictate the use of mortars other than those recommended. This table is not applicable to pavement applications.

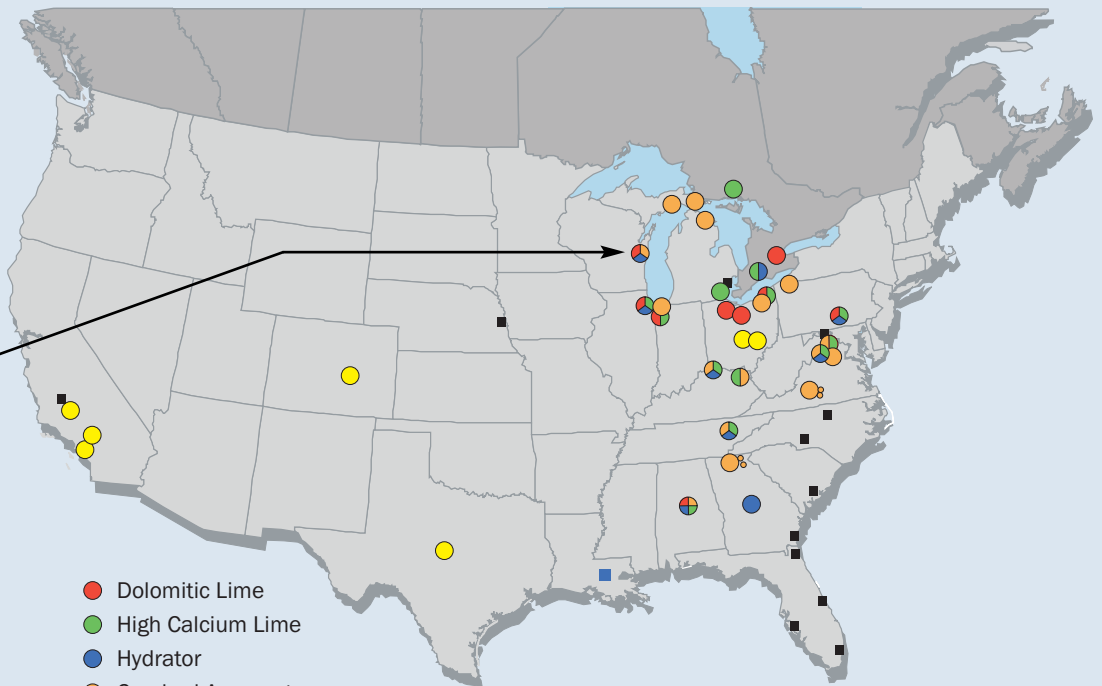
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