ATLAS V/O-1 MORTAR

One-Component, High Strength, Polymer Modified Concrete Repair for Vertical & Overhead Applications with a Corrosion Inhibitor

Description
Atlas V/O-1 Mortar is a high strength, one-component, polymer modified, cement-based, fast-setting, non-sag, mortar for vertical or overhead structural concrete repairs. This high-performance patching material is easily placed on vertical or overhead surfaces without the need for forms to properly repair parking structures, bridge structures, docks, piers, etc. This concrete repair material is specially formulated with Ferrolock, a penetrating corrosion inhibitor that helps prevent future deterioration caused by chlorides, moisture and other harmful materials. V/O-1 Mortar cures to a concrete gray color to blend-in with surrounding concrete surfaces. This durable repair mortar has excellent resistance to harsh weather conditions and freeze/thaw cycles.

Uses
• Structurally repair vertical, overhead or horizontal concrete structures.
• Ideal for repairing deteriorated concrete in parking structures, water treatment plants, bridge structures, tunnels, dams, docks, piers, ramps, and all concrete pipes, walls, ceilings & columns.
• Surfaces subject to freeze/thaw cycles.
• Repairs from 1/8” to 2” per lift.
• Interior or exterior applications, above or below grade.

Features
• Non-sag consistency is easy to place on vertical or overhead surfaces without the use of forms.
• High bond strength for excellent adhesion and a successful, long-lasting, durable repair.
• High early compressive, flexural and tensile strengths.
• Formulated with Ferrolock, a penetrating corrosion inhibitor to help prevent future deterioration caused by chlorides, moisture or other harmful materials.
• Does not form a vapor barrier.
• Thermal expansion is similar to concrete for maximum service life.
• Withstands harsh weather and freeze/thaw cycles.
• Easy to use, just add water.
• Non-corrosive, non-flammable & non-toxic.
• Can apply multiple lifts to build-up repair.
• Can be spray-applied with pneumatic shotcrete equipment.
• Consistent color match to surrounding concrete.

Yield
Approximately 0.43 ft³ per 50 lb. bag mixed with 9.5 pints of water. (0.0122 M³ per 22.7 kg bag).
At 1/4" (0.64 cm) thickness, one 50 lb. bag will cover approximately 20 ft² (1.86 M²).

Technical Data & Specifications

<table>
<thead>
<tr>
<th>Physical Properties</th>
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<tbody>
<tr>
<td>Flexural Strength (ASTM C-78) - 28 Days</td>
<td>1,200 psi (8.2MPa)</td>
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<tr>
<td>Bond Strength (ASTM C-882) - 7 Days</td>
<td>2,000 psi (13.8MPa)</td>
</tr>
<tr>
<td>Split Tensile Strength (ASTM C-496) - 7 Days</td>
<td>1,100 psi (7.5MPa)</td>
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<tr>
<td>Expansion % (ASTM C-157) Water Air</td>
<td>0.01% -0.05%</td>
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<tr>
<td>Working Time (73°F, 50% humidity)</td>
<td>20 minutes</td>
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<tr>
<td>Set Time (ASTM C-266) Initial Final</td>
<td>40 - 50 minutes 90 - 100 minutes</td>
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<tr>
<th>Compressive Strength ASTM C-109</th>
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<tbody>
<tr>
<td>1 Day</td>
<td>psi (MPa) 1,700 (11.7)</td>
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<tr>
<td>3 Days</td>
<td>psi (MPa) 3,300 (22.7)</td>
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<tr>
<td>7 Days</td>
<td>psi (MPa) 4,200 (28.9)</td>
</tr>
<tr>
<td>28 Days</td>
<td>psi (MPa) 5,400 (37.2)</td>
</tr>
</tbody>
</table>

* 73°F (22°C), 55% humidity; mixed with 9.5 pints water per bag.

Application Procedures
Preparation
Remove unsound concrete, dirt, oil, grease, and all contaminants from the surface. Repair area should be at least 1/8” in depth. It is recommended that smooth, dense surfaces be mechanically abraded to provide a rough substrate to ensure bond strength of V/O-1 Mortar. Before application, pre-dampen the surface with water to obtain a saturated-surface-dry (SSD) condition. Remove any standing water. Recommended substrate and ambient temperatures are between 40°F (4°C) and 90°F (32°C).

If reinforcing steel is exposed prior to patching, thoroughly clean the steel by abrasive blasting to remove all traces of rust. Atlas LPL Epoxy Bonder may be applied to the steel as a primer and to provide additional resistance to corrosion prior to placing V/O-1 Mortar. An epoxy primer is not required if substrate is clean and mechanically abraded to provide a rough bonding surface.
Mixing
For best results, Atlas recommends to mix the material mechanically with 1/2” low speed drill and mix paddle. Manual mixing is permitted if a small quantity of material is needed for repair. Pour 9.5 pints of cool, clean potable water per 50 lb. bag of V/O-1 Mortar into a clean mixing container. Slowly add V/O-1 Mortar powder while continuing to mix. Mix to a uniform consistency and color, which typically takes 3 - 5 minutes. If a more stiff consistency is desired, mix with only 9 pints of water. Do not mix more material than can properly be placed within the working time of the material. Do not add any other admixtures or additives without consulting Atlas.

Application
With a brush, scrub a thin coat of the mixed V/O-1 Mortar into the prepared substrate just prior to placing material. This scrub coat will help achieve maximum bond. Do not allow scrub-coat to dry before placement. If using an epoxy primer, the scrub coat is not necessary. Working time of V/O-1 Mortar is 15 - 25 minutes after initial mixing. The mortar will remain plastic for a longer period, but will have less adhesion. Working time is dependent on temperature. Place material consistently, avoiding air entrapment. Trowel the mixed material onto the surface, filling all pores and voids. Force the material against the edge of the repair area, working toward the center. Use slightly more material than needed and roughly shape during placement. Once the material has reached the proper set, it may be shaved, molded and shaped with a steel trowel. Finish to desired texture using a trowel, sponge float or wood float. Multiple lifts are possible if each lift is between 1/8” and 2” thick, and the preceding lifts are scored or profiled prior to the next lift. Apply next lift after first lift has reached its initial set, 30 minutes minimum.

Curing
Follow standard ACI curing practices. In conditions of high temperatures, high winds or low humidity, Atlas recommends the use of a curing compound, such as Atlas Quantum-Cure or Easy-Seal.

Cleaning
Clean tools and equipment with clean water. Uncured material may be removed with water. Cured material may be removed mechanically.

Packaging
50 lb. (22.7 kg) bags.
50 lb. (22.7 kg) pails.
Packaging contains complete application instructions.

Storage
Store in a cool and dry area, out of direct sunlight.

Limitations
• Do not apply when ambient or surface temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 24 hours of application.
• Do not add sand, cement, additives or admixtures without consulting Atlas.

Caution
Contains portland cement and sand. Freshly mixed mortar may cause skin irritation and possible cement burns. Avoid direct contact where possible, wash exposed skin area promptly with water. If any of the cementitious material gets into the eyes, rinse immediately and repeatedly with water and then call a physician. The manufacturer recommends using an approved mask or respirator when working with cementitious material. Do not take internally. Harmful if ingested. Keep out of the reach of children.

Additional precautions and safety information are contained in the Material Safety Data Sheet.

Technical Services
For assistance, contact an Atlas Tech representative at:
858-277-2100 or 1-877-588-2100
Fax: 858-277-0585
Email: info@atlastechproducts.com
Website: www.atlastechproducts.com

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Consult Material Safety Data Sheet for more information.

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