

# SILPRO

## SilproRepair™ VOH

Structural Vertical, Horizontal and Overhead Application  
Freeze/Thaw Resistant  
Corrosion Inhibitor  
One-Component  
Fiber Reinforced  
Up to 4" Per Lift  
Rapid-Setting

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**SilproRepair™ VOH** is a one-component, fiber reinforced, rapid-setting repair mortar for structural vertical, horizontal, and overhead applications. **SilproRepair™ VOH** is freeze/thaw resistant and contains an integral corrosion inhibitor. Due to its rapid-set, **SilproRepair™ VOH** can be placed and sculpted to proper shape in one application for thicknesses up to 4 inches.

### ADVANTAGES

- High Bond
- Shrinkage Compensated
- Freeze/Thaw Resistant
- Corrosion Inhibitor
- One-Component
- Fiber-Reinforced
- Rapid-Setting

### TEST DATA

|  |                      |                                    |
|--|----------------------|------------------------------------|
| <b>Set Time at 70°F (21°C):</b><br>ASTM C191 / AASHTO T131             | Initial              | 22 min.                            |
|  | Final                | 35 min.                            |
|  |                      | (55 min. for extended set version) |
| <b>Length Change:</b><br>ASTM C1090                                    | 1 day                | 0.13%                              |
|  | 3 days               | 0.17%                              |
|  | 7 days               | 0.18%                              |
| <b>Length Change:</b> ASTM C157<br>28 day air cure                     | (Modified ASTM C928) | < -0.4%                            |
|  | 28 day water cure    | < +0.1%                            |
| <b>Compressive Strength:</b><br>ASTM C109                              | 3 hrs                | 2550 psi                           |
|  | 24 hrs               | 4150 psi                           |
|  | 7 days               | 5070 psi                           |
|  | 28 days              | 5330 psi                           |
| <b>Flexural Strength:</b><br>ASTM C348                                 | 1 day                | 1005 psi                           |
|  | 7 days               | 1085 psi                           |
|  | 28 days              | 1145 psi                           |
| <b>Freeze/Thaw Durability:</b><br>ASTM C666, Procedure B, (300 cycles) |                      | 100% Relative Dynamic Modulus      |
| <b>Scaling Resistance:</b><br>ASTM C672                                |                      | 1 rating; very slight scaling      |
| <b>Modulus of Elasticity:</b><br>ASTM C469                             |                      | 5.32 x 10 <sup>6</sup> psi         |
| <b>Chloride Ion Weight %:</b><br>AASHTO T260                           |                      | < 0.01%                            |
| <b>Sulfate Ion Content:</b><br>AASHTO T105                             |                      | 3.80%                              |
| <b>Flex Bond Strength:</b><br>NYS DOT 13P C4.6                         |                      | 715 psi                            |
| <b>Freeze/thaw Resistance Weight Loss:</b><br>NYS DOT 13P C4.5         |                      | 0.01%                              |
| <b>Slant Shear Bond Strength:</b><br>ASTM C882 (Modified ASTM C928)    | 1 day                | > 1000 psi                         |

### SURFACE PREPARATION

Concrete substrate shall be structurally sound and clean. Remove all deteriorated concrete, dirt, grease, oil, coatings, efflorescence, etc., by acceptable mechanical means. Saw cut and under cut edges whenever possible. When rusted rebar is exposed in the process of removing old material, prepare it according to ACI recommendations or as follows: Remove sufficient material from behind the rebar to allow access to clean it completely, typically a minimum of one inch. Remove the rust, cleaning to bare metal.

### APPLY A TEST PATCH

To confirm the suitability of the surface for adhesion of the coating, and that the final appearance and function will be as the owner, architect, and contractor expect, install a test patch at the maximum designed thickness anticipated on the project and subject it to anticipated service conditions before beginning the entire job.

### SURFACE CONDITIONING

Surface shall be Saturated, Surface Dry (SSD). The best way to achieve this condition is to saturate or soak the surface with water the day before or for two hours immediately before applying **SilproRepair™ VOH**. Just before applying **SilproRepair™ VOH**, spray with clean potable water. If a mist of water sprayed on the surface runs down immediately, i.e., no water is absorbed, the surface may be assumed to be in a Saturated, Surface Dry (SSD) condition.

### PRIMING

**Slurry Coat:** Make a cement slurry by mixing water into **SilproRepair™ VOH** powder. Mix until free of lumps. If mixing with a drill, do not over mix as that may entrap air. A properly proportioned slurry is the consistency of a thick milk shake. Using a stiff brush, scrub this slurry into the surface of the area that will receive the **SilproRepair™ VOH**. Place the **SilproRepair™ VOH** before the slurry dries (10-20 minutes depending upon conditions).

### MIXING

**Mixing Proportions:** Use 4.25 quarts of clean, potable water per 50lb. bag of **SilproRepair™ VOH**. Mechanical mixing is preferred for best results. Use a slow speed 1/2 inch drill (500 - 650 rpm) and a paddle (like that used for joint compound or plaster). We suggest mixing 1/2 bag or less at one time.

**For Customer Service, Call Silpro at 1-800-343-1501**

## MIXING CONTINUED

Place all water in a clean mixing container. Add  $\frac{3}{4}$  of the powder then mix until uniform. Add remainder of powder and continue to mix. **SilproRepair™ VOH** may seem too dry at first but continue mixing for 1 to 1 1/2 minutes. Mix until a smooth uniform consistency is obtained. The **SilproRepair™ VOH** mix should be putty-like. **Note:** Do not mix longer than 4 minutes. Do not mix more material than can be placed in 15 minutes.

## APPLICATION

Apply a "tight" coat of **SilproRepair™ VOH** to the primed surface using a trowel, rubber float, or gloved hands to force **SilproRepair™ VOH** into all crevices, cracks, and edges so all air pockets will be eliminated to provide complete contact for a good bond. Apply material from the same batch to build out as much as four (4) inches thick (max 2 inches thick per lift for overhead applications. Avoid multiple lifts exceeding 8 inches). Minimum thickness is 1/8".

All surfaces of **SilproRepair™ VOH** that will receive subsequent lifts of **SilproRepair™ VOH** should be left rough so as to provide a good mechanical bond. When applying multiple lifts, a second lift can be applied in as little as 30 minutes if the lifts are 1" thick or less. If the lifts exceed 1" in thickness, damp cure the first lift overnight.

If placing more than 1" depth you may add 15lbs of clean peastone (maximum size 3/8") per bag. Prior to applying subsequent lifts over material that has been in place more than 1 hour, prime the surface with a slurry coat of **SilproRepair™ VOH** and water. Apply the additional lift (up to 4" for vertical, 2" for overhead) the next day.

If material has begun to set prior to placing, discard it. Do not retemper. Finish final layer with steel trowel or sponge float. **SilproRepair™ VOH** can be sculpted for proper profile.

## CURING

**Under Ordinary Conditions:** Beginning as soon as the patch has set, keep surface continuously moist for 5 days using burlap, fine mist, or equivalent.

If damp curing for 5 days is not possible, damp cure for 3 hours then coat with an approved water-based curing compound or **Silpro C-21 All Acrylic®**.

**Under Adverse Conditions:** If you have hot weather and rapid drying conditions including one or more of the following:

1. When the temperature of the air, the surface being worked on, or the material being used is above 90°F;
2. When air is flowing frequently or continuously at greater than 5 mph;

## CURING CONTINUED

3. When relative humidity is low; then
  - Store materials where they will remain cool.
  - Use cool water for mixing
  - Add ice to the mixing water if necessary.

Immediately after application, i.e., as soon as the patch feels warm to the touch, looks dry, and feels hard, saturate the surface with clean, potable water being careful not to erode the surface with water pressure.

Apply water until it runs down the whole face (for vertical surfaces) or until freshly sprayed surfaces continue to look and feel wet for 2 minutes (for overhead surfaces). Continue this curing for at least 3 hours.

## PACKAGE SIZE

50# Plastic lined bag (22.68 kg.)

## YIELD

0.46 cubic Feet Per Bag

## SHELF LIFE

2 Years

## LIMITATIONS

- Limit repair areas to 0.5 cubic feet
- **SilproRepair™ VOH** should be applied only when the temperature of the air, surface, and material is above 50°F (10°C).

## CAUTION!

SILPRO offers products that may contain cement, latex, epoxy, and other chemicals. Please review the Safety Data Sheet before the use of this product.

## GUARANTEE

Please call Silpro LLC for copy of guarantee.

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