FastPatch LV
Low Viscosity High Modulus Urethane

DESCRIPTION
FastPatch LV is designed to have an ultra-low viscosity and cures quickly at cold temperatures. It is a tough, zero VOC, two-component urethane that sets quickly, allowing fast return to service. FastPatch LV can be used in applications that require a fast-setting, high-modulus material.

WHERE TO USE
- Foundations - Concrete Structures
- High Load Areas - Footings, Rail Applications
- Anchoring - Securely Fasten Bolts or Rebar
- Cracks & Spalls - Fill Narrow Cracks
- Low Temperatures - Freezer Repairs

FEATURES AND BENEFITS
- High Compression Strength - Supports heavy loads
- Easy-to-Use - Meter application possible
- Fast Curing - Quick return to service
- Excellent Adhesion - Bonds strongly to concrete
- Low Viscosity - Flows into place easily
- Cures at Low Temperatures - Year round use

PACKAGING COLORS
Cartridge Gray
5-Gallon Buckets
50-Gallon Drums

YIELD
600-mL Cartridge = 36.61 in³
1500 mL Cartridge = 91.5 in³ (special order only)
5-Gallon Bucket Sets (10-gal total) = 1.3 in³
50-Gallon Drum Sets (100-gal total) = 13.3 ft³

SHELF LIFE
1 year when properly stored. Mix Before Using.

STORAGE
Store and ship this product in a clean, dry, low-humidity, shaded or covered environment at 60 to 90° F (15 to 32° C).

TECHNICAL INFORMATION

Typical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC, lbs/gal (g/l), ASTM D 2389</td>
<td>Virtually 0%</td>
</tr>
<tr>
<td>Viscosity, cps, ASTM D 4878, mixed</td>
<td>120</td>
</tr>
<tr>
<td>Service temperature, ° F (° C)</td>
<td>-30 to 170 (-34 to 77)</td>
</tr>
<tr>
<td>Potlife, min., 70° F (21° C)</td>
<td>1-2</td>
</tr>
<tr>
<td>Tack-free time, min., 70° F (21° C)</td>
<td>3-4</td>
</tr>
<tr>
<td>Hardness, Shore D, ASTM D 2240</td>
<td>78</td>
</tr>
<tr>
<td>Concrete adhesion, psi (MPa), ASTM D7234</td>
<td>836 (5.8) 100% substrate</td>
</tr>
<tr>
<td>Anchoring Strength, lbf, ASTM E 488, 1/2” threaded rod, 6” depth, psi (MPa)</td>
<td>10,101* (70)</td>
</tr>
<tr>
<td>Anchoring Strength, lbf, ASTM E 488, #4 rebar, 6” depth (MPa)</td>
<td>7,800* (54)</td>
</tr>
</tbody>
</table>

*Independently tested using specific parameters, contact manufacturer for more details.
Predominate failure mode was typically a transverse crack through the block with isolated occurrences of conical blowout or multiple cracks.

Processing Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio by volume</td>
<td>1 to 1 (Resin to Iso)</td>
</tr>
<tr>
<td>Application temp, ° F (° C)</td>
<td>10° to 110 (-12 to 43)</td>
</tr>
<tr>
<td>Mixer dimensions,</td>
<td>13 mm diameter with 32 elements</td>
</tr>
</tbody>
</table>

*Cure Time (Resin conditioned at 70°F or 21°C)

<table>
<thead>
<tr>
<th>Temperature, ° F (° C)</th>
<th>Gel time, min.</th>
<th>Tack-free time, min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30 (-18)</td>
<td>5-10</td>
<td>20-30</td>
</tr>
<tr>
<td>0°F (-18°C)</td>
<td>5-10</td>
<td>20-30</td>
</tr>
<tr>
<td>40°F (4°C)</td>
<td>3-5</td>
<td>7-10</td>
</tr>
<tr>
<td>70°F (21°C)</td>
<td>2-3</td>
<td>3-4</td>
</tr>
<tr>
<td>107°F (42°C)</td>
<td>1-2</td>
<td>2-3</td>
</tr>
</tbody>
</table>

<p>| Compression (ASTM C579) 2” cubes |</p>
<table>
<thead>
<tr>
<th>Time (hrs)</th>
<th>Max Load, lbf (kN)</th>
<th>Comp. Strength, psi (MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>23,410 (104.1)</td>
<td>5,853 (40.4)</td>
</tr>
<tr>
<td>24</td>
<td>26,010 (115.7)</td>
<td>6,503 (44.8)</td>
</tr>
<tr>
<td>168</td>
<td>26,030 (115.8)</td>
<td>6,508 (44.9)</td>
</tr>
</tbody>
</table>

*Applications below freezing require specific processing. Contact WVCO for more details.
APPLICATION

SURFACE PREPARATION

CONCRETE
1. The concrete surface to be repaired must be fully cured 28 days, structurally sound (200 psi or greater according to ASTM D7324, clean ASTM D4259, and dry less than 5%, ASTM E1007).
2. Contact WVCO for submission applications.
3. Concrete surface must be dry and clean. Water or oil present can result in poor adhesion. Apply product only if surface temperature is 5°F (3°C) above the dew point to avoid application over damp surface.
4. Remove any contaminants before profiling surface.
5. It is recommended to profile surface according to ICRI Guide 03732 to a minimum of CSP 3 by abrasive blasting.
6. Saw cut area in shape of a square 1-3 inches (2.54-7.6 cm) deep, hammer (15 lb) spall area and remove debris. Remove all loose rebar, exposed rebar embedded in concrete can remain. Recommended repair size is less than 16 ft² (1.49m²). For larger repairs, contact manufacturer.
7. Use a minimum 120 PSI continuously dry compressed air to blow out the remaining loose debris, dirt and dust prior to applying product. Mois concrete can be touched dry. If moisture returns immediately after touching, stop and do not install FastPatch in this area.
8. Use a wire bristle brush to remove dirt on the concrete bond surfaces. Use compressed air after wire brushing on all bond surfaces.
9. As necessary place all gaps, sinks or joints surrounding the spall area. Use foam backer rod or other suitable filler.
10. Priming all concrete surfaces is recommended. Prime with POLYPrime or contact WVCO for proper primer selection. Refer to primer TD5 for detailed instructions. NOTE: For spalled areas it is recommended to honor joints or moving cracks by saw-cutting and or forming FastPatch. Contact WVCO for more details. For large applications it may be necessary to install control or construction joints. Contact WVCO manufacturer for more details.

STEEL
1. Steel surfaces must be cleaned before blasting (SSPC-SP1). Remove any sharp edges and other surface imperfections.
2. Dry abrasive blast surface according to SSQC SP-6/NACE No. 3.
3. Remove any non-visible soluble salt contamination less than 3mg/cm², NACE 6018, CHLOR® (SO2).
4. Prime steel according to WVCO guidelines.

OTHER MATERIALS
1. Previously installed polymer materials must be tested to determine the best method of preparation to achieve acceptable adhesion. Consult WVCO for recommendations. Typically, methods will include removal, solvent cleaning, abrasing, and surface preparation.
2. FastPatch is not typically recommended for use on asphalitic surfaces. Exceptions do occur; contact WVCO for more details.
3. Avoid placing FastPatch on bare ground, dirt, grass or other non-structural surfaces.

GRAVEL INFORMATION
1. Use recommended FastPatch gravel for applications. Gravel MUST fully extend FastPatch. Gravel may be purchased from multiple sources. Suitability must be determined by the end user. Contact WVCO for recommended tests and evaluation procedures or for gravel approval. Gravel should be approximately 3/8” round rock that is washed and dried. Source gravel should have Mohs scale hardness ≥ 5.
2. Gravel makes up 40-50% of the repair volume when fully extended.
3. Typically 20 lbs (9 kg) of gravel is required for each gallon of mixed resin.

ANCHORING APPLICATIONS

Suitability of FastPatch in any particular application is the responsibility of the engineer or specifier. Many anchoring applications, scenarios and geometries exist. It is the end users responsibility to determine final suitability.

1. Anchoring strength listed above was achieved by drilling out 1/8” over the size of the anchor bar to a depth of 0.6”.
2. Clean anchor hole with appropriate flue brush, blow anchor hole with dry compressed air and repeat until the anchor hole is clean and free of dust, dirt or contaminants.
3. Apply appropriate amount of FastPatch into anchor hole and submerge anchor directly into liquid FastPatch. Anchor should be free of grease or surface contaminants. No scale or corrosion should be present. It is recommended to blast the anchor to SSPC SP1/NACE No. 2 near white standard.
4. Verify anchoring strength is achieved for each location, frequency and cure time as per the engineer’s or owner’s requirements.

CARTRIDGE PROCESSING
1. Cough cartridges to approximately 70°F (21°C) for 24-hours before use.
2. Use a 32-element 13 mm diameter static mix tube with a pneumatic gun. Actuating by hand is not recommended due to the increased chances of poor mixing. Contact WVCO for further instructions if hand actuated applications are required.

APPLICATION
1. Use a 1-to-1 pneumatic or electric dispenser (maximum of 80 psi) and ensure that the dispenser is the proper size. Set dispenser to 20-30 psi and adjust as necessary.
2. Vigorously shake each cartridge for 60-second or until resin is uniform.
3. Place the retaining nut and caps from the cartridge.
4. Keep the cartridge upright during assembly.
5. Check alignment of plungers inside cartridge; level if necessary.
6. Place mix-tube on cartridge nozzle and hand tighten the retaining nut over the mix-tube.
7. Keep cartridge upright and load into applicator gun.
8. While pointing cartridge upright, trigger handle to remove any air trapped in cartridges.
9. Point cartridge over waste container and dispense initial material (20-40mL) outside the area to be repaired.
10. Fill in concrete from the bottom up. Avoid triggering on and off. In cases where concrete elevations differ, fill to the lower slab height.

NOTE: Application of any FastPatch cartridge should be performed continuously. Stopping before the cartridge is completely dispensed may result in the material setting up in the mix-tube.

METER PROCESSING
1. For meter applied applications contact Willamette Valley Company Precision Technologies Division for equipment recommendations.
2. Precondition the resin, iso, and gravel to 70°F (21°C) for 24-hours before use.
3. Secure an air driven mixer with 3 folding blades in the center bung hole of the drum. Air driven mixer blade configuration: 8” blade - bottom, 6” blade - middle, and a 6” blade - top. Ensure the mixer is spinning clockwise at a speed adequate enough to thoroughly mix the resin. Mix for 30 minutes. Repeat above mixing instructions after every 4 hours of operation. Avoid mixing for more than 30 minutes as air may become entrapped in the resin. Mixers are available through WVCO Precision Technologies.
4. Test the meter operation and FastPatch before dispensing in spall area using a 13 mm diameter mixer with 32 elements. Dispense in test area to verify FastPatch material sets up in less than 3 minutes.

APPLICATION
1. Dispense FastPatch on the walls and ENTIRE floor of the void.
2. Place gravel in the void below surrounding surface by 0.25 in (0.64 cm). Gravel should be placed in repairs ≥ 0.5 in (1.28 cm) thick or material may pull away from surrounding substrate.
3. Insert mix tube nozzle in the lowest elevation of the gravel and dispense until FastPatch floats on the gravel. Move the mix tube to higher elevations while dispension until the entire the void is flooded with FastPatch.
4. Trowel (plastic) FastPatch level with surrounding surface. Avoid over-filling the void area.

NOTE: Material is workable for approximately 2 minutes at 70°F (21°C). Colder temperatures and cold gravel will slow the cure. Warmer temperatures will speed the cure.

NOTE: FastPatch is an aromatic compound. Discoloration from UV light may occur, the cure.

VENTILATION

1. Materials should be handled following good industrial ventilation practices to avoid prolonged exposure.

HEALTH AND SAFETY

Before handling, you should become familiar with the Safety Data Sheet (SDS) regarding the risks and safe use of this product. To obtain an SDS please call 800 333 9826 or send an email to: mssds@wilvaco.com.

DISCLAIMER OF WARRANTY

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Revision Date: November 2013