**FPT Infrastructure Standard Specification for**

**FIBRECRETE G**

**FIBER-REINFORCED POLYMER PATCHING MATERIAL**

PART 1 - GENERAL

1.1 SYSTEM DESCRIPTION

1. Repair spalled areas, potholes, joints and large cracks (> 1” wide) on concrete pavements using a fiber reinforced polymer patching material, bulking aggregates and surface course aggregates as specified below.
2. The system shall be applied to the wet film thickness (w.f.t.) as specified by the Engineer & Manufacturer. It shall be applied to the suitably prepared area(s) as defined in the plans and strictly in accordance with the Manufacturer's latest technical recommendations.

1.2 REFERENCES

1. ASTM International (ASTM): www.astm.org:
	1. ASTM D8260-20 Standard Specification for Hot-Applied Asphalt Aggregate-Filled Mastic

1.3 DEFINITIONS

1. Binder – the thermal setting material that is the basis of the patching material, and to which any fillers, fibers or other components are added.
2. Patching material – the binder and other additives, mixed together, and in the form that will be applied to the patch, not including bulking aggregate or final surface aggregate.
3. Bulking aggregate – additional aggregate applied to the patch in combination with the patching material and based on the depth of the patch.

1.4 QUALITY ASSURANCE

1. Qualifications
	1. The Manufacturer shall have a minimum of 10 years’ experience in the production, sales, and technical support of the Specified patching materials.
	2. The Applicator shall have the Manufacturer’s written approval that he is qualified by training and experience to execute the work, as the Manufacturer’s nominated & approved applicator.
	3. Proposed suppliers of "or equal" products shall be required to meet all provisions of this specification as well as provide evidence for compatibility between components to the satisfaction of the Engineer.
	4. Any deviations from the Specification shall be submitted in advance of bids being submitted. Unless prior approval has been given before the Bids close, any deviations from the Specification, shall not be entertained after the bidding is completed.
2. Sampling and Testing
	1. Provide material that has been preapproved by the Construction Division, Maintenance Division, or Material and Testing. Submit blended samples of patching material for preapproval or field evaluation.

1.5 PACKAGING, STORAGE AND PROTECTION

1. Packaging
	1. Patching material shall be packaged in 50-pound meltable bags that are an integral ingredient in the patching material.
2. Storage and Protection
	1. The Applicator shall be provided with a storage area for all components. The area shall be secure, cool and dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.
	2. Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Engineer or other personnel.

1.6 PROJECT CONDITIONS

1. Environmental Requirements
2. Application may proceed while air and substrate temperatures are between 5 °F (-15 °C) and 95 °F (35 °C), providing the substrate is clean, dry and free of moisture.
3. Safety Requirements
4. The Owner shall be responsible to provide uninterrupted and unimpeded access to and in the work area when work is to commence and for the duration of the installation process.
5. Non-related personnel shall not be present in the work area during the installation.

PART 2 - PRODUCT

2.1 MANUFACTURER(S)

FPT Infrastructure

Home Office

401 Old US 52 South

Mount Airy, NC 27030 USA

T: 336 789 7259

Website: www.fptinfrastructure.com

TERRITORY CONTACT

Name – Title

Contact Number(s); email

2.2 MATERIALS

1. Patching Material. Provide a hot-applied patching material consisting of a factory-blended binder, polymers, graded fillers, aggregates, fiberglass, steel fibers and rubber that once heated, provides an impermeable, voidless solid mass at ambient temperatures. Formulate the patching material according to climatic conditions to provide a durable pavement repair with good fluidity at process temperature, low temperature flexibility, and ambient temperature flow resistance. Pre-mixed granite consisting of igneous rock with the following gradation:

|  |  |  |
| --- | --- | --- |
| SCREEN SIZE | MM | % PASSING |
| 3/8” | 9.5 | 100 |
| 5/16” | 8 | 90 |
| ¼” | 6.3 | 70 |
| 3 ½ | 5.6 | 50 |
| 5 | 4 | 30 |
| 7 | 2.8 | 0 |

The binder shall be a pentaerythritol rosin-based material and meet the following requirements:

**Property Test Method Value**

Color Grey

Mastic Resilience ASTM D8260 50% minimum

Effects of Rapid Deformation ASTM D8260 No cracking, chipping, or separation, 8 N-m, -7 °C

Crack Bridging ASTM D8260 3 cycles, -7 °C

Mastic Stability ASTM D8260 40.0 mm maximum @ 70°C

Recommended Application Temperature 300 – 380 °F

Specific Gravity 1.8 – 2.0

1. Bulking Aggregate. Provide single sized bulking aggregate consisting of a crushed, double-washed and dried granite. The size shall be from 5/8” to 1” determined through sieve analysis.
2. Final Surface Aggregate. Provide final surface aggregate consisting of a crushed, double washed and dried aggregate.

PART 3 - CONSTRUCTION

3.1 PREPARATION

1. Equipment
	1. All application equipment shall be certified by the material manufacturer.
2. Concrete Preparation
3. Remove all loose and damaged material from the repair area, either by saw cutting around the area and using a jackhammer to remove material, or by using a milling machine as directed. Remove material from the repair area to a depth and width necessary to provide sound pavement that will allow proper seating of the patching material.
	* 1. If using a jackhammer, use an approved jackhammer capable of performing the required removal of the existing material without damaging the surrounding pavement. Use a jackhammer of no larger than 30 pounds unless approved by the Engineer.
4. Thoroughly clean and dry substrate faces using a hot-compressed air lance.
5. Prime the area using a primer determined by the manufacturer to prevent moisture intrusion.
6. Heat and mix the patching material to 300 to 350 ⁰F on site in a horizontal mixing unit equipped with electronically controlled thermostats. Heat the bulking and final surface aggregates to ensure they are dry and free of any dust using a vented barrel mixer to 300 ⁰F or other approved method.

3.2 APPLICATION

1. Patching material application

1. Apply patching material to the repair area. If the repair is deeper than 1”, add bulking aggregate at a rate of 20% to 50% by volume. Deeper lifts will use a higher percentage of bulking aggregate. For this reason, bulking aggregate should not be factory blended or added to the melting machine. Use other left thicknesses as directed.
2. Install additional patching material and bulking aggregate in 1” to 2” lifts until the repair is within ¾” of the existing pavement.
3. Apply a final coat of the heated patching material to level the repair area.
4. Dress the surface of the patch with heated surface aggregate while the patch is still hot to ensure good adhesion of surface aggregate.
5. Sweep the area and remove all loose debris from the site.
6. Open repair area to traffic only when the patch has cooled to the point that it does not permanently deform under pressure, as recommended by the manufacturer or as directed.

PART 4 - BASIS OF PAYMENT

3.1 PAYMENT

1. This Item will be paid by the pound. This price is full compensation for furnishing materials, including bulking and final surface aggregates, patching material binder, and primer; heating and mixing; removal and disposal of existing pavement material; placing and finishing; labor, equipment, tools and incidentals.

END SECTION