SPECIFICATION
SKID/SLIP RESISTANT
PREFORMED THERMOPLASTIC PAVEMENT MATERIAL

USE: A durable, high skid and slip resistant, pavement marking material suitable for use as bike lane, pathway, roadway, intersection, airport, commercial or private pavement delineation and markings. For use on asphalt or portland cement concrete pavement surfaces.

1.1. The material shall be a resilient preformed thermoplastic product containing a minimum thirty percent (30%) intermix of anti-skid/anti-slip elements and where the top surface contains anti-skid/anti-slip elements. These anti-skid/anti-slip elements must have a minimum hardness of 8 (Mohs scale).

1.2. The material shall be resistant to the detrimental effects of motor fuels, antifreeze, lubricants, hydraulic fluids, etc.

1.3. The material shall be capable of being applied on bituminous and/or portland cement concrete pavements by the use of a handheld heat torch, infrared heater, or a blue-flame radiant heater.

1.4. The material shall be capable of being applied to asphalt and portland cement concrete surfaces without preheating the application surface to a specific temperature. The material shall be capable of being affixed to green concrete (concrete that has set but not appreciably hardened). The material shall not require the portland cement concrete application areas to be cured or dried out.

1.5. The material shall be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures.

1.6. The material is typically supplied in segments measuring 2 ft. x 3 ft. (.61 m x .915 m). The material shall be capable of being applied in temperatures down to 45ºF without any special storage, preheating or treatment of the material before application.

1.7. The material shall contain heating indicators evenly distributed on the surface that shall act as visual cues during both the application process and post-application.

2. **MANUFACTURING CONTROL AND ISO CERTIFICATION:** The manufacturer shall be ISO 9001:2008 certified for design, development and manufacturing and provide proof of current certification. The scope of the certification shall include the design, development and manufacture of preformed thermoplastic marking material.

3. **MATERIAL:** Shall be composed of an ester-modified rosin impervious to degradation by motor fuels, lubricants, etc., in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements uniformly distributed throughout the material. The thermoplastic material shall conform to AASHTO designation M249, with the exception of the relevant differences due to the material being supplied in a preformed state, being non-reflective, and being of a color different from white or yellow.

3.1. Pigment: The color of the pavement marking material shall be accordance with FHWA Memorandum dated April 15, 2011: Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14).

3.1.1. Daytime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1			2			3			4	
X	y		X	y		x	y		x	y
0.230	0.754		0.266	0.500		0.367	0.500		0.444	0.555

3.1.2. Nighttime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1			2			3			4	
X	y		X	y		x	y		x	y
0.230	0.754		0.336	0.540		0.450	0.500		0.479	0.520

3.1.3. The pigment system shall not contain heavy metals or any carcinogen, as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

3.2. Heating indicators: The top surface of the material shall have regularly spaced indents. The closing of these indents during application shall act as a visual cue that the material has reached a molten state, allowing for satisfactory adhesion and proper embedment of the anti-skid/anti-slip elements, and a post-application visual cue that proper application procedures have been followed.

3.3. Skid Resistance: The surface of the preformed thermoplastic material shall contain factory applied anti-skid elements with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum skid resistance value of 60 BPN when tested according to ASTM E 303.

3.4. Slip Resistance: The surface of the preformed thermoplastic material shall contain factory applied anti-skid elements with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum static coefficient of friction of 0.6 when tested according to ASTM C 1028 (wet and dry), and a minimum static coefficient of friction of 0.6 when tested according to ASTM D 2047.

3.5. Thickness: The material shall be supplied at a minimum thickness of 90 mil (2.29 mm).

3.6. Environmental Resistance: The material shall be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.

4. **APPLICATION:**

4.1. Asphalt: The material shall be capable of being applied using the propane torch method, and, or infrared or blue flame heater recommended by the manufacturer. The material shall be capable of being applied at ambient and road temperatures down to 45ºF without any preheating of the pavement to a specific temperature. A sealer specified by the manufacturer shall be applied to the pavement surface prior to material application to ensure proper adhesion. A thermometer shall not be required during the application process. The pavement shall be clean, dry and free of debris. Supplier shall enclose application instructions with each box/package.

4.2. Portland Cement Concrete: The same application procedure shall be used as described under Section 4.1.

5. **PACKAGING:** The preformed thermoplastic material shall be packaged in cardboard cartons. The cartons in which packed shall be non-returnable and shall not exceed 40 in. (1.02 m) in length and 25 in. (.64 m) in width. The cartons shall be labeled for ease of identification. The weight of the individual carton must not exceed fifty (50) pounds (23 kg). A protective film around the carton must be applied in order to protect the material from rain or premature aging.

6. **TECHNICAL SERVICES:** The successful bidder shall provide technical services as required.

7. **PERFORMANCE:** The preformed thermoplastic markings shall meet state specifications and be approved for use by the appropriate state agency.