

SECTION 625 - PAVEMENT MARKINGS

625.01 DESCRIPTION

This section describes removing and providing pavement markings. Pavement marking removal and installation shall be per State Spec Section 646, excluding measurement and payment, and as modified herein.

625.02 MATERIALS

A. Paint and Epoxy Markings

1. Only furnish white, yellow, and black paint and/or epoxy products that are shown as approved on the Wisconsin Department of Transportation's Approved Products List (APL).
2. Furnish dual coated glass beads treated for both moisture resistance and adherence conforming to AASHTO M247, Type I, except with a minimum of 80 percent true spheres. Provide a certificate of compliance certifying that beads supplied under the contract conform to these specifications.
3. When green markings are required, the contractor shall source products that are shown on the APL that are available in green, unless an approved equal is submitted and subsequently approved by the Engineer.
4. Methyl Methacrylate (MMA), Two Component Traffic Paint shall be Color-Safe Pavement Marking with Anti-Skid Surface by Transpo Industries or MMAX Colored Lane Treatment by Ennis-Flint, or an Engineer approved equal.

The MMA based resin system shall comply with chromaticity requirements according to MUTCD Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes.

MMA Based Resin System: The MMA based resin system shall meet the following requirements:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
Tensile Strength @ 7 days, psi, minimum	400	ASTM D 638
Hardness, Shore D, minimum	50	ASTM D 2240
Gel Time, minutes, minimum	10	ASTM D 2471
Cure Rate, hours, maximum	3	Film@ 75°F
Water Absorption @ 24 hours, max.	0.25%	ASTM D 570

Aggregate: The aggregate shall be high friction crushed Bauxite, Granite, or gravel. The aggregate will be delivered to the construction site in clearly labeled bags or sacks. The aggregate shall be clean, dry and free from foreign matter. The aggregate shall meet the following requirements:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
Hardness, minimum	7	Mohs Scale

B. Tape Markings

1. Only furnish tape products shown as approved on the APL.
2. The engineer may consider as equal products for temporary tape.

C. Thermoplastic Markings

1. Thermoplastic markings are not accepted and shall not be used.

625.03 CONSTRUCTION

A. Removing Markings

1. If removing pavement markings by grinding, the marking shall be fully removed and the final ground surface shall be ground in a uniform manner and not more than 1/8" below the adjacent pavement surface.
2. Do not perform water blasting on asphalt pavements without written permission from the Engineer.

B. Marking Surface Preparation

The pavement surface shall be dry and free from frost, dust, dirt, glaze, oil, grease, loose paint, gravel, debris or other materials and contaminants which would prevent proper bonding of the marking to the pavement. Materials and contaminants which would prevent bonding shall be removed by the Contractor prior to application of the marking.

C. Placing Pavement Markings

1. Ensure adequate time for oils to dissipate on asphalt pavements before applying pavement markings, but not more than 7 days on roadways open to traffic.
2. Do not apply pavement markings on roads recently receiving a sealcoat treatment until the final sweeping has occurred unless otherwise directed in writing by the Engineer.
3. MMA Markings
 - a. Do not apply MMA to new concrete or new asphalt prior to the manufacturer's recommendation time. This time could be up to 30 days after placement of the new pavement.
 - b. If applying on an existing pavement, ensure all previous pavement markings are completely removed. Pre-treat joints and cracks in the

pavement greater than 1/4 inches in width and depth with the MMA resin system or by using an alternative procedure proposed by the manufacturer and agreed upon by the Engineer. Proceed with the MMA resin system installation once the product, in the pre-treated areas, has gelled or once the alternative procedure has been accomplished.

- c. Allow MMA to cure according to manufacturer recommendations. Protect treated surfaces from traffic and environmental effects until area has cured.
- d. Remove and replace high friction colored surface treatment that ravels, delaminates, or wears off within 90 days after placement, unless approved to remain in place by the engineer. The limits of removal and replacement shall be approved by the engineer. The replaced high friction colored surface treatment shall meet the requirements of this sub-article

D. Cold Weather Marking

1. Follow the manufacturer's recommendation for minimum temperatures for placement of MMA.
2. No additional payment will be made for cold weather markings.
3. Unless directed by the Engineer in writing, pavement markings placed in inadequate temperatures (both the pavement temperature and/or ambient temperature) will be the responsibility of the Contractor to maintain and then replace once adequate weather conditions and temperatures allow.

E. Protection of Work

1. The Contractor shall be fully responsible for protecting pavement markings until fully dried or cured from traffic, whether the traffic is the traveling public or construction traffic.
2. The Contractor, when applying liquid long line pavement markings under live traffic, shall place cones or other similar traffic control devices on the wet lines immediately back of the marker at a rate of one cone per 25 feet or closer as needed to prevent pickup on passing vehicles. The cones shall be promptly removed when the lines are sufficiently dry to preclude any pickup under traffic.
3. Other types of pavement markings shall be adequately protected by cones to preclude pickup under traffic.
4. Markings that are subjected to vehicle traffic prior to being dry may be required to be remarked at no cost to the City.

F. Acceptance & Proving Period

1. The Engineer may review markings and request the Contractor to verify that markings meet reflectivity requirements as outlined in the State Specs.

2. The proving period for all permanent markings, including MMA, shall be the City's standard warranty period as defined in Section 501 of the City's specifications.
 - a. MMA warranty will be evaluated on the following:
 - i. The MMA based resin system material will maintain its original color in the surface area throughout the 'warranty period' with the exception of natural weathering, tire and dirt deposits and abnormal markings applied after installation.
 - ii. Friction will achieve a minimum BPN of 60 according to ASTM E-303.
 - iii. The MMA based resin system material will maintain its skid resistance qualities in 100% of its surface area to never fall below a BPN of 60 during the 'warranty period'.
 - iv. With the exception of structural cracking or excessive movement of the surface beneath the MMA based resin system will not be subject to excessive cracking in its surface.