

5.09 BRIDGE PAINTS AND PAVEMENT MARKING MATERIALS

5.09.01 GENERAL

This section covers the inspection and sampling of paint materials, mixed paints, and pavement marking materials. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of paint, pigments, pastes, thinners, and other marking materials.

5.09.02 TYPES OF PACKAGING

Paint will usually be offered for sampling in the ready mixed form and may be either in a bulk storage tank or sealed packages such as one gallon and five gallon cans. Aluminum Paint, Inorganic Zinc Primer, Aluminum Epoxy Mastic Primer, and Polyurethane Field Coat will be offered in two containers with the paste or pigment in one container and the vehicle in the other container.

The source of the material will usually be the paint factory where the product will be in storage tanks or sealed packages, but it may be a distributor's warehouse or dealer's storage area where the material will be in sealed packages only. Occasionally materials such as linseed oil or thinners will be at a manufacturer's plant other than a paint factory where the manufacturer will be compounding other products used in maintenance or construction.

5.09.03 BASIS OF ACCEPTANCE

Paint and paint materials will be accepted by one of the following procedures:

(a) The material will be sampled and tested by the Bureau of Materials and Research and a test report issued.

(b) Inorganic Zinc Primer, Subsection 1807: Basis of acceptance of material furnished under this specification shall be receipt and approval of a Type C certification as specified in section 2600.

Organic Zinc Primer, Subsection 1808: The basis of acceptance of material furnished under this specification shall be receipt and approval of a Type C certification as specified in section 2600.

Vinyl Finish Coat, Subsection 1809: The basis of acceptance of material furnished under this specifications shall be visual inspection of the container label for compliance with these requirements.

Aluminum Epoxy Mastic Primer, Polyurethane Finish Coat (90P/M-186),

Water-borne Acrylic Finish Coat (90P/M-187) will be prequalified and placed on a prequalified list with acceptance based on a Type C certification.

(c) Quantities of paint of less than two hundred dollars value for any one contract may be accepted on the manufacturer's guarantee as provided in the Standard Specifications.

(d) Quantities of paint of five gallons or less for any one project may be accepted on brand name as provided in the Standard Specifications.

5.09.04 **METHODS OF INSPECTION AND SAMPLING**

(a) At the Source.

Inspection of paint or paint materials at the factory or at a distributor's or dealer's storage area will be made by a representative of the Department and will be limited to the taking of a representative sample and submitting it to the Materials and Research Center for test. Except for mixed paints that may have settled badly, this is readily accomplished by following the methods in subsection **5.16.28**. If the inspector is asked to sample paint that has settled badly, with pigment caked on the bottom of the container to such an extent that it is impossible to properly mix, he should reject it on visual inspection and refuse to sample. Make sure all paints have been thoroughly mixed prior to sampling.

(b) At Destination.

Inspection of paint delivered to a job site will normally be the responsibility of the Field Engineer or District Materials Engineer. Since the paint should have been tested and accepted prior to delivery, his inspection will usually consist only of visual inspection for identification marks and for the condition of the paint in the container. The Engineer shall see that all paint is properly mixed before application. Paint that has been tested and accepted by the laboratory may be unfit for use if held in storage for extended periods of time. If the contractor is unable to mix the paint so that the pigment is completely and uniformly incorporated with the vehicle, the Engineer should reject it and require the contractor to obtain new material. Attention is called to the fact that it is extremely difficult to properly mix a five gallon can of paint by stirring with a paddle. If any hard pigment settlement is present it is impossible to do so. If necessary, the Engineer should insist that the paint be mixed according to subsection **5.16.28**. Make sure all paints have been thoroughly mixed prior to sampling.

(c) Thinning.

If thinning is permitted, the Engineer should inspect the thinner and see that it is the type allowed by the Specifications. If a thinner is used, it must be one specified by the paint manufacturer.

(d) Shop Coat.

The shop coat primer on structural steel delivered to the job should be inspected by the Engineer. If the shop coat has been damaged by moving the steel before complete drying, or if the surface is contaminated by dirt, cinders, etc., it should be cleaned and repainted. In extreme cases the Engineer should require the damaged shop coat to be completely removed and the steel repainted with the shop primer. After erection of the steel, the Engineer should check the condition of the shop coat. Any skips, small areas left unpainted because of erection marks, rivets, bolt heads and welded areas should be properly cleaned and touched up with an appropriate primer. The cleaning of field welded areas should be given careful attention. All slag, spatter and excess reinforcing should be ground off and the weld area sand blasted before painting.

(e) Method of Sampling.

Unless otherwise specified, all paints and paint materials will be sampled according to subsection **5.16.28**.

5.09.05 PAVEMENT MARKING - PAINTING

5.09.05.01 **GENERAL**

This section covers the inspection of pavement marking paint. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of pavement marking paint.

5.09.05.02 **TYPES OF PACKAGING**

Paint will usually be offered for sampling in single component form and may be either in a bulk storage tank or sealed packages such as 55, 5 or one gallon containers.

5.09.05.03 **PREQUALIFICATION**

Not required.

5.09.05.04 **BASIS OF ACCEPTANCE**

Acceptance of traffic line paint will be made on the basis of Type "D" certification as set forth in Section 2600 and visual inspection of performance and consistency on the job site.

5.09.05.05 **VERIFICATION**

Submit 2 quart sample as per Appendix A.

5.09.05.06 **METHODS OF INSPECTION AND SAMPLING**

(a) At Destination.

Inspection of paint delivered to a job site will normally be the responsibility of the Field Engineer or District Materials Engineer. Inspection will usually consist only of visual inspection for identification marks and for the condition of the paint in the container. The Engineer will see that all paint is properly mixed before application. Paint may be unfit for use if held in storage for extended periods of time. If the contractor is unable to mix the paint so that the pigment is completely and uniformly incorporated with the vehicle, the Engineer should reject it and require the contractor to obtain new material. Attention is called to the fact that it is extremely difficult to properly mix a five gallon can of paint by stirring with a paddle. If any hard pigment settlement is present it is impossible to do so. If necessary, the Engineer should insist that the paint be mixed according to subsection **5.16.28**. Make sure all paints have been thoroughly mixed prior to sampling.

(b) Method of Sampling.

Unless otherwise specified, the traffic paint will be sampled according to subsection **5.16.68**.

5.09.06 EPOXY PAVEMENT MARKING MATERIAL

5.09.06.01 GENERAL

This section covers the inspection and sampling of Epoxy Pavement Marking Material. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of Epoxy Pavement Marking Material.

5.09.06.02 TYPES OF PACKAGING

Epoxy Pavement Marking Material will usually be offered for sampling in a ready form and be in a heated bulk tanks. The source of the material will usually be the contractor.

5.09.06.03 PREQUALIFICATION

(1) Qualifying Samples: Manufacturers will be requested to submit qualifying samples of each type covered by the Standard Specification. All samples must be from a normal production run.

(2) Testing: The qualifying samples will be forwarded to the Engineer of Tests, Materials and Research Center, Department of Transportation, 2300 Van Buren, Topeka, Kansas 66611, where they will be tested for compliance with all requirements of the applicable specification. Each manufacturer will be notified of the test results on his own samples.

(3) Qualified Epoxy: Epoxy manufacturers whose qualifying samples comply with the requirements of the specification will be placed on a prequalified list. No Epoxy shall be used on State work unless it has been prequalified. Manufacturers will be required to re-qualify at intervals as determined by the Chief, Bureau of Materials and Research, or if there is a change in the material.

(4) Verification Sample: The Engineer will take a verification sample for both Part A and B from one lot of each color per manufacture per project.

5.09.06.04 BASIS OF ACCEPTANCE

(1) Prequalification as required by 5.09.06.03.

(2) Receipt and approval of a Type C certification as specified in section 2600.

5.09.06.05 SAMPLING

(a) At Destination.

Inspection of Epoxy Pavement Marking Materials delivered to a job site will normally be the responsibility of the Field Engineer or District Materials Engineer.

(b) Method of Sampling.

Unless otherwise specified, Epoxy Pavement Marking Materials will be sampled according to subsection 5.16.28.

5.09.07 **THERMOPLASTIC PAVEMENT MARKING**

5.09.07.01 **GENERAL**

This section covers the inspection and sampling of Thermoplastic Pavement Marking. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of Thermoplastic Pavement Marking.

5.09.07.02 **TYPES OF PACKAGING**

Thermoplastic Pavement Marking will usually be offered for sampling in the melted form in heated bulk tanks or in powder form in sealed sacks. The source of the material will usually be the contractor.

5.09.07.03 **PREQUALIFICATION**

(1) Qualifying Samples: Manufacturers will be requested to submit qualifying samples of each type covered by the Standard Specification. All samples must be from a normal production run.

(2) Testing: The qualifying samples will be forwarded to the Engineer of Tests, Materials and Research Center, Department of Transportation, 2300 Van Buren, Topeka, Kansas 66611, where they will be tested for compliance with all requirements of the applicable specification. Each manufacturer will be notified of the test results on his own samples.

(3) Qualified Thermoplastic Pavement Marking: Thermoplastic Pavement Marking manufacturers whose qualifying samples comply with the requirements of the specification will be placed on a prequalifying list. No Thermoplastic Pavement Marking shall be used on State work unless it has been prequalified. Manufacturers will be required to re-qualify at intervals as determined by the Chief, Bureau of Materials and Research, or if there is a change in the material.

(4) Verification Sample: The Engineer will take a verification sample from one lot of each color per manufacture per project.

5.09.07.04 **BASIS OF ACCEPTANCE**

(1) Prequalification as required by 5.09.07.03.

(2) Receipt and approval of a Type C certification as specified in section 2600.

5.09.07.05 **SAMPLING**

(a) At Destination.

Inspection of Thermoplastic Pavement Marking delivered to a job site will normally be the responsibility of the Field Engineer or District Materials Engineer.

(b) Method of Sampling.

Unless otherwise specified, Thermoplastic Pavement Marking will be sampled according to subsection 5.16.30.

5.09.08 **MULTI-COMPONENT LIQUID PAVEMENT MARKING MATERIAL**

5.09.08.01 **GENERAL**

This section covers the inspection and sampling of Multi-Component Liquid Pavement Marking Material. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of. Multi-Component Liquid Pavement Marking Material.

5.09.08.02 **PREQUALIFICATION**

- (1) Successful performance on a Department test project.
- (2) The Bureau of Materials and research will maintain a list of qualified materials. Products will remain on the Prequalified list as long as field performance is satisfactory.
- (3) Verification samples are not required for the liquid pavement marking materials. The Engineer will take (2) one-quart samples of glass beads used on the project. Forward all samples to the Materials and Research Center for testing.

5.09.08.03 **BASIS OF ACCEPTANCE**

- (1) Multi-Component Liquid Material
 - (a) Material will be accepted on the basis of product name and manufacturer.
 - (b) Receipt and approval of a Type C certification in accordance with Section 2600 for each lot of material used.
 - (c) Visual observation of performance on the project
- (2) Glass Beads/Reflective Elements for Drop-on Application
 - (a) Receipt and approval of a Type D certification in accordance with Section 2600.

5.09.09 **POLYMER-MODIFIED CEMENTITIOUS PAVEMENT MARKING MATERIAL**

5.09.09.01 **GENERAL**

This section covers the inspection and sampling of Polymer-Modified Cementitious Pavement Marking Material. The following instructions are intended to serve as a guide for Department personnel and their representatives in the sampling and inspection of. Polymer-Modified Cementitious Pavement Marking Material.

5.09.09.02 **PREQUALIFICATION**

- (1) Successful performance on a Department test project.

(2) Verification samples are not required for the cementitious material. The engineer will take (2) one-quart samples of glass beads used on the project. Forward all samples to the Materials and Research Center for testing.

5.09.09.03 **BASIS OF ACCEPTANCE**

- (1) Cementitious Material
 - (a) Material will be accepted on the basis of product name and manufacturer.
 - (b) Receipt and approval of a Type C Certification according to the requirements of Section 2600 for each lot of material used.
 - (c) Visual observation of performance on the project.
- (2) Glass Beads for Drop-on Application.
 - (a) Receipt and approval of a Type D certification in accordance with Section 2600.

5.09.10 **COLD PLASTIC PAVEMENT MARKING MATERIAL**

5.09.10.01 **GENERAL**

This section covers cold plastic pavement marking materials for use on both concrete and asphalt surfaces.

5.09.10.02 **PREQUALIFICATION**

(1) Submit a sample of at least 100 linear feet of each color of material to be prequalified to the Engineer of Tests. No material will be used unless it has been prequalified.

5.09.10.03 **BASIS OF ACCEPTANCE**

- (1) Prequalification as stated in section 5.09.10.02.
- (2) Long Line Markings
 - (a) Satisfactory results of tests conducted at the Materials and Research Center.
 - (b) Each lot or batch will be sampled by a representative of the Department and will be subjected to visual examination and tested as necessary to insure compliance.
- (3) Preformed Symbols
 - (a) Receipt and approval of a Type C Certification in accordance with section 2600
 - (b) Certification must include all lot numbers of material used to fabricate the symbols.
- (4) Visual observation of performance on the project.

5.09.11 **PATTERNED COLD PLASTIC PAVEMENT MARKING TAPE**

5.09.11.01 **GENERAL**

This section covers patterned cold plastic marking material for use on both concrete and asphalt surfaces.

5.09.11.02 **PREQUALIFICATION**

(1) Submit a sample of at least 100 linear feet of each color of material to be prequalified to the Engineer of Tests. No material will be used unless it has been prequalified.

5.09.11.03 **BASIS OF ACCEPTANCE**

- (1) Prequalification as stated in section 5.09.11.02.
- (2) Long Line Markings
 - (a) Satisfactory results of tests conducted at the Materials and Research Center.
 - (b) Each lot or batch will be sampled by a representative of the Department and will be subjected to visual examination and tested as necessary to insure compliance.
- (3) Preformed Symbols
 - (a) Receipt and approval of a Type C Certification in accordance with section 2600
 - (b) Certification must include all lot numbers of material used to fabricate the symbols.
- (4) Visual observation of performance on the project.

5.09.12 **HIGH DURABILITY PAVEMENT MARKING TAPE**

5.09.12.01 **GENERAL**

This section covers white or yellow preformed plastic pavement markings designed to be used in severe wear conditions. This includes material for use on both concrete and asphalt surfaces.

5.09.12.02 **PREQUALIFICATION**

(1) Submit a sample of at least 100 linear feet of each color of material to be prequalified to the Engineer of Tests. No material will be used unless it has been prequalified.

5.09.12.03 **BASIS OF ACCEPTANCE**

- (1) Prequalification as stated in section 5.09.12.02.

- (2) Long Line Markings
 - (a) Satisfactory results of tests conducted at the Materials and Research Center.
 - (b) Each lot or batch will be sampled by a representative of the Department and will be subjected to visual examination and tested as necessary to insure compliance.
- (3) Preformed Symbols
 - (c) Receipt and approval of a Type C Certification in accordance with section 2600
 - (d) Certification must include all lot numbers of material used to fabricate the symbols.
- (4) Visual observation of performance on the project.

5.09.13 TEMPORARY PAVEMENT MARKING TAPE

5.09.13.01 GENERAL

This section covers preformed plastic pavement markings designed for limited service life. This includes both removable (Type 1) and non-removable (Type II) materials for use on both concrete and asphalt surfaces. Type IIA is that which is for use as temporary skip lines on new asphalt surfaces only.

This section also covers removable line masking tape designed to obliterate existing pavement markings. The tape must be able to be removed without damage to the existing markings.

5.09.13.02 PREQUALIFICATION

- (1) Submit a sample of at least 200 linear feet (Type 1 and Removable Line Masking Tapes) or 100 linear feet (Type II) of each color, and a complete set of installation recommendations and instructions.

5.09.13.03 BASIS OF ACCEPTANCE

- (1) Prequalification as stated in section 5.09.13.02.
- (2) Receipt and approval of a Type C certification in accordance with section 2600
- (3) Visual observation of performance on the project.

5.09.14 PLOWABLE RAISED PAVEMENT MARKERS

5.09.14.01 GENERAL

This section covers plowable, raised, prismatic reflective pavement markers for lane marking and delineation.

5.09.14.02

PREQUALIFICATION

- (1) Markers must be tested by the AASHTO National Transportation Product Evaluation Program (NTPEP).
- (2) Forward a sample of each marker and an official copy of the NTPEP test report.
- (3) Include evidence that the product offered is identical to that described in the test report.
- (4) Include information regarding the recommended adhesive, if any.
- (5) Prequalification will be based on satisfactory compliance of NTPEP results with ASTM D 4383.

5.09.14.03

BASIS OF ACCEPTANCE

- (1) Plowable Pavement Markers
 - (a) Prequalification as stated in section 5.09.14.02.
 - (b) Type C certification in accordance with section 2600.
 - (c) Visual inspection for conditions and dimensional requirements.
- (2) Epoxy will be accepted on the basis of a Type D certification.