



MARYLAND STANDARD METHOD OF TEST (MSMT)

Laboratory and Field Procedures Manual



**Office of Materials Technology
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3. GENERAL

A. Introduction

1. The purpose of this Manual is to outline policies, procedures and guidelines to assure the quality of materials and construction in all Maryland State Highway Administration (SHA) projects.
2. This Manual is published by the Office of Materials Technology (OMT) and contains the Maryland Standard Method of Test (MSMT) procedures for field and laboratory testing.

B. Materials Source

1. Submittals

The Contractor shall submit proposed source of supply letters to OMT's Materials Management Division once a construction contract has been awarded. This document shall list the awarded Contract number, project location, bid item number, and material(s) to be used in each bid item. The source for each of these materials shall be listed with the company name and address and the manufacturers' and/or fabricator's name and address. The approval of these sources means that the producer has the necessary facilities to produce acceptable material. It does not imply that the material is approved.

2. New Material Sources

SHA will arrange to evaluate a proposed source that has not recently or never produced material for Administration projects. SHA may take representative samples of the material being produced at the time of inspection to evaluate the production process and quality control.

3. Qualified Products List

OMT and the Office of Traffic and Safety (OOTS) maintain a list of Qualified Materials used on Maryland State Highway Administration construction projects. Qualified materials are those which have undergone a prescribed procedure for submittal, testing, and qualification. Qualification does not imply that materials can be used on SHA projects without regard for established Quality Assurance testing and procedures.

4. Recycled Materials

Refer to Section 900.3 of the **Supplemental Specifications for Construction and**

Materials.

<http://www.roads.maryland.gov/pages/ssp.aspx?PageId=854&lid=SSPJUL2008>

C. Quality Assurance Program

1. **Definition** - Planned and systematic actions and processes necessary to ensure that a product or service will satisfy established requirements for quality.
2. **Sampling and Testing Locations**
 - a. **Off site** - This includes plants, manufacturing facilities, and supplier locations.
 - b. **On site** - Project locations or approved Laboratory locations.
3. **Random Sample** – A sample of material which is chosen by chance and the method of sampling is not biased by the sample taker. Every portion of a given quantity of material has an equal and independent chance of being chosen.
4. **Representative Samples**
 - a. **Definition** - A suitable cross-section of samples of materials which provide an accurate indicator of the materials performance when tested using specified procedures
 - b. **Sampling and Testing Procedures** - Sampling and testing of a given material must be performed in exactly the same way each time so that the results of tests can be properly compared with standard requirements. These requirements are normally outlined in AASHTO or ASTM Standards, this Manual or related documents.
 - c. **Size of Samples** - These are listed in Table I of the Sample Frequency Guide, the ASTM Standards or the AASHTO Standards.

D. New Products or Processes

1. **Definition** - Products or processes not previously used by the State Highway Administration and not covered by any current applicable SHA specification. These products may require submission to the New Products Committee for evaluation.

E. Quality Control

1. **Definition** - All contractor/vendor operational techniques and activities that are performed to fulfill the Contract requirements.

2. **Verification** - Verification of quality control includes sampling and testing performed to validate the quality of the product.

F. Acceptance

1. **Definition** - All factors that comprise the Maryland State Highway Administration's determination of the quality of the product as specified in the Contract requirements
 - a. Verification sampling and testing will be used to validate the quality control sampling and testing if quality control sampling and testing is for material acceptance.
2. **Sampling Frequency for Acceptance** - Listings in the Sampling Frequency Guide generally refer to projects where the quantity of material is large enough to justify multiple sampling. It is important to note that these should generally be viewed as minimum frequencies. Projects having only small quantities of certain materials require performance of a minimum of one acceptance sample and test, except as outlined in the Small Quantity Exceptions Table.

G. Independent Assurance Audits.

1. **Definition** - An audit of the QC/QA Technician's proficiency in performing tests in accordance with specification requirements and verification that the proper equipment for performing tests is available, calibrated, and in proper working order.
2. **Frequency** - Independent Assurance Audits (IAA) will be performed on a random basis by an Independent Assurance Auditing Technician using the System-Based approach. Audits are only used to assess the QC/QA Technician's proficiency in performing specified tests and verification of equipment used in performing those tests. IAA's are not used to accept or reject materials.

H. Material Certification

1. **Definition** - Refer to TC 1.03 of the **Standard Specifications for Construction and Materials**.
2. **Verification of Material Certification.**
 - a. **Definition** - A random process of sampling and testing to evaluate a manufacturer's/producer's material certificate of compliance.

- b. **Verification** - Verification of certifications will be performed as specified in the Quality Assurance Manual. The frequencies shown in the Manual are minimums and verification testing may be performed at any time at the discretion of the Laboratory.