

# Asphalt Technology Division

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# Material Quality Assurance Processes

## Asphalt Additives

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
Anti-Strip	904.04.08	
WMA: Binder Additive	Special Provisions	
WMA: Mixture Additive	Special Provisions	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

**Production facility data maintained to track the material supply chain and provide a basis for qualified products.**

*Address and low level information is maintained to provide data of facilities that produce this category's material types. Facilities that produce materials in this category will be given a status of "Product Qualification Required".*

1 per 1 Prior to Usage on Project

#### Evaluation of Material Product for ATD Materials

Product Qualification

#### Qualification of Material Product for use on State Projects

*New products for this category will be evaluated through the MPEL system. Navigate to "<http://www.roads.maryland.gov/index.aspx?PageID=600>" for the current qualified list and detailed procedures. Navigate to "<http://apps.roads.maryland.gov/MPEL/>" for new submissions.*

1 per 1 Prior to Usage on Project

# Material Quality Assurance Processes

## Asphalt Mixtures

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 3

Source Level Materials	Specification	Comments
12.5mm DHMA	904.04.02	
19mm DHMA	904.04.02	
25mm DHMA	904.04.02	
37.5mm DHMA	904.04.02	
4.75mm DHMA	904.04.02	
9.5mm DHMA	904.04.02	
12.5mm GSMA	904.05.02	
19mm GSMA	904.05.02	
9.5mm GSMA	904.05.02	
12.5mm OGFC	Special Provisions	
9.5mm OGFC	Special Provisions	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

##### Production facility to be certified to produce material for State projects.

The material producer shall be reviewed by the Asphalt Technology Division prior to being named as a Source of Supply. Each year Asphalt Mix production plants that wish to produce for State projects will go through a start-up inspection performed by OMT staff.

1 per 12 Months

#### Evaluation of Material Product for ATD Materials

Product Qualification

##### Review and Qualification of Asphalt Mixture Material Product.

Individual asphalt mixtures shall be approved for state use prior to being used on any project.

1 per 1 Prior to Source Request

#### SHA Acceptance Facility Visit for Asphalt Mix Production

Product QC/QA

OMT personnel shall process the Asphalt Mix Plant QA checklist to ensure that the Quality Control plan is being followed and operations are performed correctly.

##### Production Quality Assurance

1 per 10 Production Day

1 per 6,000 Ton

#### SHA Acceptance of Binder Component

Product QC/QA

##### Asphalt Technology representative to witness and take possession of material sample.

Samples to be taken from the plant sampling device.

1 Quart in a Friction Top Can

1 per 1 Project Completion

1 per 10 Production Day

1 per 6,000 Ton

# Material Quality Assurance Processes

## Asphalt Mixtures

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 2 of 3

### Source Approval

#### Source Submission

Source of Supply Submittal

A name and address of the material sources of supply shall be sent to MMD for review. The producer is the organization that creates the material, the supplier is the one that delivers it to the project.

Material Producer and Product must be on qualified lists and associated correctly prior to source approval. If either cannot be accomplished the source will be rejected.

#### Source of Supply Processing

1 per 1 Prior to Usage on Project

### Material Production

#### Notification of Production for ATD materials

Production Notification

**Producer to notify the Asphalt Tehnology Division 1 day prior to production.**

*Producer to notify ATD anticipated quantity of Asphalt Mix production and actual quantity of previous day's production.*

1 per 1 Placement Day

### Project Construction

#### Core Sampling for Asphalt Mix Density Analysis

Material Sampling and Testing

Steps will be taken to ensure the density of the placed material is of an adequate density. If the density does not meet specifications a pay adjustment may take place or the material may be removed and replaced. Cores will be taken after compaction and prior to opening for traffic.

**Project Engineer shall verify that the contractor takes QC and QA Density Cores at random locations in the pavement. (1 Sample = 5 Cores Min. See Material QA Manual for more information)**

*One sample for QA and will be delivered to OMT for analysis. One sample for QC and will be analyzed by the producer with results sent to OMT. 5 cores per sample (Minimum). If daily quantity is greater than 2500 Ton additional cores are required at a rate of 1 core per sample per 500 Ton (or fraction thereof). Cores are typically 6" diameter, however 4" diameter cores allowed on 19mm or smaller mixtures.*

1 Sample = 5 - 6" Dia. Cores (min)

2 per 1 Production Day

#### Density Gauge testing for Asphalt Mix Density tracking

Material Sampling and Testing

Task is only applicable if the asphalt mixture is placed in patches or small daily quantities (<200 tons). The results are for tracking purposes only and will not be incorporated into a pay factor.

**Patch density measured at random locations with an asphalt density gauge, recorded on a Form 73-1P and submitted to OMT. See specification 505.03.13 for additional details.**

3 Readings per test

1 per 1 Lift of each Patch

#### Box Sampling for Asphalt Mixture

Material Sampling and Testing

Samples of the asphalt mixture will be taken at random intervals behind the paver and be analyzed at the respective laboratories. Results will be utilized in determining a mixture pay factor. Producer's data is only included if the sample was taken behind the paver. If multiple mix formulations are utilized the frequencies indicated are for each mixture that is placed.

**Project Engineer shall verify that the contractor takes QC and QA Mix Box at random intervals during placement of asphalt mixture.**

*One sample for QA and will be delivered to OMT for analysis. One sample for QC and will be analyzed by the producer with the results sent to OMT.*

1 Sample = 1-50 LB Box (2-50 LB for 37.5mm Mix)

2 per 1 Production Day

2 per 1,000 Ton

# Material Quality Assurance Processes

## Asphalt Mixtures

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 3 of 3

### Box Sampling for Patches or Small Daily Quantities of Asphalt Mixture

Material Sampling and Testing

When daily placed quantity of asphalt mixture is low (<200 ton) samples of the asphalt mixture will be taken less frequently. These will occur at random intervals behind the paver and be analyzed at the respective laboratories. Results will be utilized in determining a mixture pay factor and statistical analysis, the producer's data is only included if the sample was taken behind the paver. If multiple mix formulations are utilized the frequencies indicated are for each mixture that is placed.

**Project Engineer shall verify that the contractor takes QC and QA Box Samples at random intervals at least once in five placement days when daily quantities are low. See 505.03.11 for additional details.**

One sample for QA and will be delivered to OMT for analysis. One sample for QC and will be analyzed by the producer with the results sent to OMT.

1 Sample = 1-50 lb Box

2	per	5	Placement Day
2	per	1,000	Ton

### Asphalt Mix Density Pay Factor Analysis

Sample Analysis

Results from the Producer's QC data and OMT QA data will be analyzed in conjunction and produce a daily density pay factor.

**Density QA and QC results are to be processed by the Asphalt Technology Division to develop a recommended "Density Pay Factor".**

1	per	1	Sample Set
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### Asphalt Mix Pay Factor Analysis

Sample Analysis

The Producer's QC data and OMT QA data will be analyzed in conjunction and a mix pay factor will be generated when the appropriate number of samples have been received. QC data will only be incorporated into the Pay Factor Analysis if the sample was taken from behind the paver.

**Mixture QA and QC results are to be processed by the Asphalt Technology Division to develop a recommended "Mixture Pay Factor".**

1	per	1	Project Completion
1	per	6	Sample Set

### Evaluation of Pavement Surface Profile

Project Wide Testing

This task is applicable to the final pavement's ride quality and is performed when Section 535 is included in the contract's special provisions and indicates that it is required.

**Surface profiling will be completed as indicated in Section 535 of the Special Provisions.**

See the State Highway Web Site for "SHA Ride Specification" (<http://www.roads.maryland.gov/Index.aspx?PageId=32>) for additional information.

1	per	1	Item Completion
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# Material Quality Assurance Processes

## Asphalt Release

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
Asphalt Release Agents	915.02	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

##### Production facility data maintained to provide a basis for qualified products.

Address and low level information is maintained to provide data of facilities that produce this category's material types. Facilities that produce materials in this category will be given a status of "Product Qualification Required".

1 per 1 Prior to Usage on Project

#### Evaluation of Material Product for ATD Materials

Product Qualification

##### Qualification of Material Product.

New products for this category will be evaluated through the MPEL system. Navigate to "<http://www.roads.maryland.gov/index.aspx?PageID=600>" for the current qualified list and detailed procedures. Navigate to "<http://apps.roads.maryland.gov/MPEL/>" for new submissions.

1 per 1 Prior to Usage on Project

# Material Quality Assurance Processes

## Emulsified Asphalts, Other

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
CQS-1h	904.03	
CRS-2	904.03	
PM Emulsion Membrane	Special Provisions	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

##### Production facility to be certified to produce material for State projects.

Each year Emulsified Asphalt production plants that wish to produce for State projects will submit a QC plan to be reviewed by the Asphalt Technology Division for conformance to AASHTO PP 71.

1 per 12 Months

#### Evaluation of Material Product for ATD Materials

Product Qualification

##### Qualification of Material Product for use on State Projects.

New products for this category will be evaluated through the MPEL system. Navigate to "<http://www.roads.maryland.gov/index.aspx?PageID=600>" for the current qualified list and detailed procedures. Navigate to "<http://apps.roads.maryland.gov/MPEL/>" for new submissions.

1 per 1 Prior to Usage on Project

# Material Quality Assurance Processes

## Emulsified Asphalts, Tack Coat

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
CRS-1 (Tack Coat)	904.03	
CSS-1h (Tack Coat)	904.03	
SS-1h (Tack Coat)	904.03	
TT-Anionic (Trackless Tack)	904.03	
TT-Cationic (Trackless Tack)	904.03	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

##### Production facility to be certified to produce material for State projects.

Each year Emulsified Asphalt production plants that wish to produce for State projects will submit a QC plan to be reviewed by the Asphalt Technology Division for conformance to AASHTO PP 71.

1 per 12 Months

#### Evaluation of Material Product for ATD Materials

Product Qualification

Emulsified asphalt products that are approved for use on state projects shall appear on the Qualified Products list that is managed by OMT. To be placed on this list the refinery shall submit emulsion samples and certification to OMT for testing and review.

##### Qualification of Material Product for use on State Projects

New products for this category will be evaluated through the MPEL system. Navigate to "<http://www.roads.maryland.gov/index.aspx?PageID=600>" for the current qualified list and detailed procedures. Navigate to "<http://apps.roads.maryland.gov/MPEL/>" for new submissions.

1 per 1 Prior to Source Request

### Source Approval

#### Source Submission

Source of Supply Submittal

A name and address of the material sources of supply shall be sent to MMD for review. The producer is the organization that creates the material, the supplier is the one that delivers it to the project.

Material Producers must be on a qualified list prior to source approval. If the Contractor sources a producer that is not on the qualified list he will be advised that the source approval is contingent on a qualification process, the procedures, and duration. If he still wishes to use this product he will need to advise the material producer / vendor to contact the New Products team for procedures.

##### Source of Supply Processing

1 per 1 Prior to Usage on Project

### Project Construction

#### ATD Material Verification

Material Verification

The Project Engineer shall verify that the material is from the correct source and supervise sampling of materials during delivery to the project site. The Project Engineer shall witness the sampling, collect certifications and have them delivered to OMT for testing.

##### Project Engineer to collect certifications (TC 1.03 w/ test data) and material samples. Submit items to OMT for testing and clearance.

Material Certification corresponds to a "Certificate of Analysis". This is not to be confused with a Bill of Lading / Shipping Ticket. Sample containers must conform to the requirements outlined in AASHTO R 66.

1 Gallon in a Widemouth Plastic Jar

1 per 1 Item Completion

# Material Quality Assurance Processes

## Pavement Repair Materials

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
Asphaltic Joint Sealant and Crack Filler	911.01	
Cold Patch Material (CPM)	924	

### Plant or Product Qualification

#### Review of Producer (QPL)

Facility Qualification

**Production facility data maintained to provide basis for qualified products.**

Address and low level information is maintained to provide data of facilities that produce this category's material types. Facilities that produce materials in this category will be given a status of "Product Qualification Required".

1 per 1 Prior to Source Request

#### Review of Product (QPL)

Product Qualification

**Qualification of Material Product for use on State Projects.**

New products for this category will be evaluated through the MPEL system. Navigate to "<http://www.roads.maryland.gov/index.aspx?PageID=600>" for the current qualified list and detailed procedures. Navigate to "<http://apps.roads.maryland.gov/MPEL/>" for new submissions.

1 per 1 Prior to Source Request

### Source Approval

#### Source Submission

Source of Supply Submittal

A name and address of the material sources of supply shall be sent to MMD for review. The producer is the organization that creates the material, the supplier is the one that delivers it to the project.

**Source of Supply Processing**

1 per 1 Prior to Usage on Project

### Project Construction

#### ATD Material Verification

Material Verification

**Project Engineer to collect certifications (TC 1.03 w/o test data) and submit certs to OMT for clearance.**

1 per 1 Delivery to Project

# Material Quality Assurance Processes

## Performance Graded Asphalt Binder

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
A (58S-22)	904.02	
B (58S-28)	904.02	
C (64S-22)	904.02	
D (64S-28)	904.02	
E (64H-22)	904.02	
F (64E-22)	904.02	

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

The binder supplier shall submit a Quality Control Plan per AASHTO R26.

#### Qualification of Binder Supplier for use on State projects

Address and low level information is stored to track material supply chain. The specific materials supplied and the qualification status is maintained by the Asphalt Technology Division. New producers or recertification requests will be submitted through the MPEL system (<http://apps.roads.maryland.gov/MPEL>).

1 per 1 Prior to Usage on Project

#### Evaluation of Material Product for ATD Materials

Product Qualification

Product data and certifications of all compliant lots/tanks will be stored to serve as a baseline for future QC/QA samples.

Start-up Samples: Product, Lot/Tank identifiers, and binder analysis are determined by the binder supplier and shall be submitted to the Asphalt Technology Division via email prior to delivery to the asphalt mix producer. A material certification (TC 1.03 w/ test data) shall accompany the binder shipment to the production plant and will be retained by the plant until ATD arrives to collect QA samples. A copy of the certification will be retained by the plant after this point.

Source Change: Asphalt Technology Division shall verify the material and data complies to specification when a source change is required during state production

#### Qualification of Material Product.

Done for each new batch of binder product produced by the refinery.

1 per 1 Batch, Lot or Heat

# Material Quality Assurance Processes

## Recycled Materials for HMA Mixtures

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 1

Source Level Materials	Specification	Comments
Bag House Fines		
Millings, General		
RAP (Reclaimed Asphalt Pavement)		
RAS (Reclaimed Asphalt Shingles)		

### Plant or Product Qualification

#### Evaluation of Production Facility for ATD Materials

Facility Qualification

##### Joint Qualification with Asphalt Mix production facility..

Qualification of producers of Recycled Materials for asphalt mixtures is aggregated into the Qualification of HMA Producers.

1 per 1 Prior to Source Request

#### Evaluation of Material Product for ATD Materials

Product Qualification

RAP and RAS Stock Piles will be identified and recorded prior to usage within an asphalt mixture.

##### Qualification of Material Product.

Typically used for RAP or RAS stock piles.

1 per 1 Prior to Source Request

### Source Approval

#### Source Submission

Source of Supply Submittal

A name and address of the material sources of supply shall be sent to MMD for review. The producer is the organization that creates the material, the supplier is the one that delivers it to the project.

This material category is only sourced when millings are being used as a fill material. For example "Millings for Shoulder Edge Drop-off". When this occurs the pre-qualification requirements of the product are relaxed. Pre-Qualification of this material category is more strict when it is used as a component of asphalt mixtures.

##### Source of Supply Processing

1 per 1 Prior to Usage on Project

### Project Construction

#### ATD Material Verification

Material Verification

##### Project Engineer to visually inspect placed material and submit Form 14 to OMT for clearance.

Used when millings are specifically used on the project. For example millings for shoulder edge drop-off.

1 per 1 Item Completion

# Material Quality Assurance Processes

## Surface Treatments

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 1 of 2

Source Level Materials	Specification	Comments
High Friction Surface Treatment	Special Provisions	
Type I - Slurry Seal	923.05	
Type II - Slurry Seal	923.05	
Type III - Slurry Seal	923.05	

## Plant or Product Qualification

### Evaluation of Production Facility for ATD Materials

Facility Qualification

**Production facility data maintained to provide a basis for qualified products.**

Address and low level information is maintained to provide data of facilities that produce this category's material types. Facilities that produce materials in this category will be given a status of "Product Qualification Required".

1 per 1 Prior to Source Request

### Evaluation of Material Product for ATD Materials

Product Qualification

Slurry seal products must be qualified by the Asphalt Technology Division prior to project sourcing. See 923.05 for further details.

**Review and Qualification of Material Mixture for use on State Projects.**

Individual asphalt mixtures shall be approved for state use prior to being used on any State project by the Asphalt Technology Division.

1 per 1 Prior to Source Request

## Source Approval

### Source Submission

Source of Supply Submittal

A name and address of the material sources of supply shall be sent to MMD for review. The producer is the organization that creates the material, the supplier is the one that delivers it to the project.

A material product must be qualified and associated to the source request prior to approving the source. Correct association is implied by selecting the product from the product association dropdown list and having a mix design sheet attached. If this cannot be accomplished the submission will be rejected.

**Source of Supply Processing**

1 per 1 Prior to Usage on Project

## Material Production

### Notification of Production for ATD materials

Production Notification

**Producer to notify the Asphalt Technology Division one week prior to material placement.**

1 per 1 Placement Day

## Project Construction

### ATD Material Verification

Material Verification

**Project Engineer to collect material certifications (TC 1.03 w/o test results) and submit to materials management for clearance.**

See MD Specification 507.03 for further details on specification requirements.

1 per 1 Delivery to Project

# Material Quality Assurance Processes

## Surface Treatments

Asphalt Technology Division

QA / Frequency Guide, Source Level Material Listing Page 2 of 2

### Sampling and Testing of ATD materials

Material Sampling and Testing

**Project Engineer to sample emulsion and mixture. Sample to be delivered to OMT for verification.**

*Sample containers must conform to the requirements outlined in AASHTO R 66.*

1 Gallon of Mixture and 1 Gallon of Emulsion in a Widemouth Plastic Jar

1 per 1 Production Day