

**PROCEDURES FOR QUALIFICATION OF  
PAVEMENT MARKING MATERIALS**

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## EPOXY PAVEMENT MARKINGS

The Maryland State Highway Administration (SHA) maintains a list of qualified Epoxy Pavement Markings. These markings shall conform to **951.08** of SHA's Standard Specifications for Construction and Materials.

There are three Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **. NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*275 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*200 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.
5. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

#### **NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*275 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*200 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

*Durability* – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

*Color* – Satisfactory comparison to a yellow chart or white chip.

Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

- a. For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, **Methyl Methacrylate, Polyurea Polyurethane** etc... and SRPM). Only US states where snow plowing occurs will be considered.
- b. For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**7. NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*275 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*200 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **EPOXY PAVEMENT MARKINGS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, regardless of previous approval, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## CONTRAST TAPE

The Maryland State Highway Administration (SHA) maintains a list of qualified Surface Applied Tapes. These tapes shall conform to **951.10** of SHA's Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note:

- a. Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

- b. This product may also involved two materials for approval. One approval for yellow or white tape pavement marking and another approval for the border made by an approved black out tape marking

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note:

- a. Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.
- b. This product may also involved two materials for approval. One approval for yellow or white tape pavement marking and another approval for the border made by an approved black out tape marking.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states

4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

- a. For durable pavement marking materials (Tape, Thermoplastic 40-90 mil, Epoxy, **Methyl Methacrylate, Polyurea Polyurethane** etc... and SRPM). Only US states where snow plowing occurs will be considered.
- b. For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**7. NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note:

- a. Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.
- b. This product may also involved two materials for approval. One approval for yellow or white tape pavement marking and another approval for the border made by an approved black out tape marking.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## CONTRAST TAPE

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, regardless of previous approval, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## INLAID TAPE

The Maryland State Highway Administration (SHA) maintains a list of qualified Inlaid Tape. These tapes shall conform to **951.07** of SHA's Standard Specifications for Construction and Materials.

There are three Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>  
Note: These materials are placed as an overlay on the test deck but approved for use by the Manufacturer as an inlaid marking
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

### **NTPEP Field Testing Criteria**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*300 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*200 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

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#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.
5. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria -**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*300 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*200 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

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Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
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**Note:**

7. For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... and SRPM). Only US states where snow plowing occurs will be considered.
8. For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.
9. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*350 mcd/lux/sq./m. for white	*300 mcd/lux/sq./m. for white
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Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

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## INLAID TAPE

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

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**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## SURFACE APPLIED TAPE

The Maryland State Highway Administration (SHA) maintains a list of qualified Surface Applied Tapes. These tapes shall conform to **951.07** of SHA's Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

### **NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

*Durability* – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

*Color* – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... **and SRPM**). Only US states where snow plowing occurs will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*350 mcd/lux/sq./m. for white	*175 mcd/lux/sq./m. for white
*250 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **SURFACE APPLIED TAPE**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, *regardless of previous approval*, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## REMOVABLE TAPE

The Maryland State Highway Administration (SHA) maintains a list of qualified Removable Tape. These tapes shall conform to **951.04** of SHA's Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Any test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

### **NTPEP Field Testing Criteria –**

*Retro-reflectivity* – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	SIX MONTHS
*500 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*300 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

*Internal Strength (Removability)* – < 3 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 removed in one piece and 10 removed in fragments.)

*Adhesive Bond* -- < 6 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 being easily removed and 10 could not be removed.)

*Discernability* -- < 3 (Using NTPEP longitudinal criteria: on a scale of 0 – 10 with 0 being no marking left on surface and 10 being 100% of marking left on surface.)

*Color* – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

*Retro-reflectivity* – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>SIX MONTHS</b>
*500 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*300 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

*Internal Strength (Removability)* – < 3 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 removed in one piece and 10 removed in fragments.)

*Adhesive Bond* -- < 6 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 being easily removed and 10 could not be removed.)

*Discernability* -- < 3 (Using NTPEP longitudinal criteria: on a scale of 0 – 10 with 0 being no marking left on surface and 10 being 100% of marking left on surface.)

*Color* – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select **VENDOR REGISTRATION** to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.

5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, **Methyl Methacrylate, Polyurea Polyurethane** etc... and SRPM). Only US states where snow plowing occurs will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>SIX MONTHS</b>
*500 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*300 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Internal Strength (Removability) – < 3 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 removed in one piece and 10 removed in fragments.)

Adhesive Bond -- < 6 (Using NTPEP longitudinal criteria: on a scale of 1 – 10 with 1 being easily removed and 10 could not be removed.)

Discernability -- < 3 (Using NTPEP longitudinal criteria: on a scale of 0 – 10 with 0 being no marking left on surface and 10 being 100% of marking left on surface.)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## REMOVABLE TAPE

**\*Note: Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, *regardless of previous approval*, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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**SNOW-PLOWABLE RAISED/RECESSED PAVEMENT MARKERS**

The Maryland State Highway Administration (SHA) maintains a list of qualified Snow-Plowable Raised/Recessed Pavement Markers. These tapes shall conform to **951.05** of SHA’s Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland’s qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland’s Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for a identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... and SRPM). Only US states where snow plowing occurs will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **SNOW-PLOWALE RAISED/RECESSED PAVEMENT MARKERS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, *regardless of previous approval*, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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**TEMPORARY RAISED PAVEMENT MARKERS**

The Maryland State Highway Administration (SHA) maintains a list of qualified Temporary Raised Pavement Markers. These materials shall conform to **104.03.03** of SHA’s Standard Specifications for Construction and Materials.

There are three Qualification Methods for this category.

Qualification Method A

1. The manufacturer places the candidate material on a any test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland’s qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland’s Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - c) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - d) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for a identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evolutions within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... and SRPM). Only US states where snow plowing occurs will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

	<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
Castings	* 5 rating	* 5 rating
Lens Durability	* 5 rating	* 2.5 rating
Nighttime Visibility	* 5 rating	* 2.5 rating

**Based on NTPEP criteria: on a scale of 0 – 5 with 5 being excellent, 3 being fair, and 0 being beyond use.**

**\* Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **TEMPORARY RAISED PAVEMENT MARKERS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, *regardless of previous approval*, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## LEAD-FREE THERMOPLASTIC MARKINGS

The Maryland State Highway Administration (SHA) maintains a list of qualified Lead-Free Thermoplastic Pavement Marking Materials. These materials shall conform to **951.02** of SHA's Standard Specifications for Construction and Materials.

There are three Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland's qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland's Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select **VENDOR REGISTRATION** to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

### **NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

*Durability* – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

*Color* – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

7. For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... and SRPM). Only US states where snow plowing occurs will be considered.
8. For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.
9. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>TWENTY-FOUR MONTHS</b>
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **LEAD-FREE THERMOPLASTIC MARKINGS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, regardless of previous approval, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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## PREFORMED THERMOPLASTIC PAVEMENTS

The Maryland State Highway Administration (SHA) maintains a list of qualified Preformed Thermoplastic Pavements. These pavements shall conform to **951.06** of SHA’s Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

### Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland’s qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland’s Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

### **NTPEP Field Testing Criteria –**

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

**This criterion denotes both “Preheat” and “Non-preheat” installation.**

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

**This criterion denotes both “Preheat” and “Non-preheat” installation.**

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select VENDOR REGISTRATION to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:** For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, Methyl Methacrylate, Polyurea Polyurethane etc... and SRPM). Only snow plowed states will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	TWENTY-FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

**This criterion denotes both “Preheat” and “Non-preheat” installation.**

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

Note: Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **PREFORMED THERMOPLASTIC PAVEMENTS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, regardless of previous approval, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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**NON-TOXIC LEAD-FREE WATERBORNE PAVEMENT MARKERS**

The Maryland State Highway Administration (SHA) maintains a list of qualified Lead-Free Waterborne Paints. These paints shall conform to **951.01** of SHA’s Standard Specifications for Construction and Materials.

There are two Qualification Methods for this category.

Qualification Method A

1. The manufacturer places the candidate material on a Northern test deck of the National Transportation Evaluation Program (NTPEP) <http://www.ntpep.org>
2. The NTPEP test results, both field and laboratory, are compared to Maryland’s qualification and the performance requirements included in this document.
3. Upon satisfactory review of NTPEP data for color, retro-reflectivity, durability, and MSDS lab evaluations, the manufacturer of the material will be notified of the acceptable NTPEP product evaluation code(s).

The material manufacturer must then visit Maryland’s Product Evaluation Listing (MPEL) at <http://apps.roads.maryland.gov/MPEL/> and then select **VENDOR REGISTRATION** to begin the process.

When your registration has been accepted, you will receive an email requesting you to complete the detailed application and provide the following information into MPEL:

1. NTPEP Evaluation code.
2. **Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria –**

Specifications – Lead-free, fast dry, 60-second no-track

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

<b>INITIAL</b>	<b>FOUR MONTHS</b>
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

**\*a. Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

**Note.** Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

#### Qualification Method B

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will perform its own test deck in accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select **VENDOR REGISTRATION** to begin the process.
2. SHA will review the MPEL application.
  - a) If the material is recommended for lab and field evaluations, the Pavement Marking Team will develop a work plan identifying testing procedures and costs.
  - b) If the material is not approved for lab and field evaluation, the qualification process will be concluded.
3. After acceptance through MPEL, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
4. After successful laboratory testing, material(s) will be field tested. The manufacturer is responsible for identifying a project site to install the material. This test site must then be approved by the Pavement Marking Team. Manufacturer field samples must be full compliment for one mile, further mileage will not be permitted. Manufacturer must cover costs for material(s), installation and maintenance of traffic during installation.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Specifications – Lead-free, fast dry, 60-second no-track

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

**\*a. Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

**Note.** Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

Qualification Method C

When pavement marking materials that do not have NTPEP results, MDSHA will determine if the material is appropriate for review and evaluation. Upon approval, MDSHA will review other states data on the performance of the particular material accordance to the following:

1. Complete the New Product Evaluation form on MPEL at <http://apps.roads.maryland.gov/MPEL/> and then select **VENDOR REGISTRATION** to begin the process.
2. SHA will review the MPEL application and reviewers comments.
3. If the recommendation is to review lab and field evaluations, the Pavement Marking Team will review existing or ongoing evaluations within other US states
4. If the material is not recommended for lab and field evaluation, the qualification process will be concluded.
5. After the review and material is deemed to be acceptable for use, the manufacturer will be requested to submit a representative material sample to SHA for laboratory testing with MSDS. SHA does not purchase materials for testing.
6. After successful laboratory testing, material(s) and acceptable field data from other states the Pavement Marking Team will recommend use approval status on the Qualified Product List.

**Note:**

For durable pavement marking materials (Tape, Thermoplastic 40-90, Epoxy, **Methyl Methacrylate, Polyurea Polyurethane** etc... and SRPM). Only US states where snow plowing occurs will be considered.

For non- durable pavement marking materials (paint and temporary markings and markers) any US state may be used.

**Laboratory Testing Criteria** – see Special Provisions Inserts and Designated Tests

**NTPEP Field Testing Criteria** –

Specifications – Lead-free, fast dry, 60-second no-track

Retro-reflectivity – When measured on NTPEP Northern test deck, outside of the wheel path on transverse lines or the skip line using a 30 – meter retro-reflectometer the minimum shall average:

INITIAL	FOUR MONTHS
*250 mcd/lux/sq./m. for white	*250 mcd/lux/sq./m. for white
*150 mcd/lux/sq./m. for yellow	*150 mcd/lux/sq./m. for yellow

Durability – (film loss) >6 (on a scale of 0 – 10 with 10 being the best)

Color – Satisfactory comparison to a yellow chart or white chip.

**\*a. Climate changes alter NTPEP results from season to season. These minimum required numbers may change when Maryland analyzes the most recent NTPEP data for all candidate materials.**

**Note:** Maryland may approve material prior to the 24 months if satisfactory 12 month field data within MD or other Northern states is available.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA’s QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## **NON-TOXIC LEAD-FREE WATERBORNE PAVEMENT MARKERS**

Upon satisfactory completion of color, retro-reflectivity, durability, and lab evaluations, the material will be qualified to be placed on the MDSHA Qualified Products List.

QA Material samples will be taken at the manufacturer's facilities during periodic audits, and tested by MDSHA for comparison with the manufacturer's QC results.

If the components or the proportioning of the material changes, the material will be withdrawn from Maryland's QPL.

Maryland reserves the right to withdraw ANY approval or qualification if the material demonstrates poor performance.

**Materials/Products representing revised formulations/standards of currently approved Qualified Products will not be accepted for testing within six (6) months of the most recent evaluation, unless requested by SHA.**

**Materials/Products evaluated and not accepted, are not eligible for resubmission within six (6) months of the most recent examinations, unless requested by the SHA.**

**Producers are required to recertify their products every 5 years in order to remain on SHA's QPL beginning February 2015. A cost reimbursement of \$250.00 will be charged for the Recertification process. Products approved within 36 months of the Recertification Date are exempt.**

## To Maintain Approval for Pavement Markings

Current products listed on the Qualified Products List (QPL) will remain approved, provided that formulation and test results have not changed or been altered from the original northern NTPEP Product ID submittal. It is strongly recommended, *regardless of previous approval*, that all materials be placed on the Northern NTPEP test deck every five (5) years.

Maryland reserves the right to withdraw any product from this list when unsatisfactory performance is exhibited or when test data becomes too old.

**NOTE:** In January before each striping season, manufacturers should supply MDSHA OMT with their current manufacturing products and the corresponding NTPEP codes. Keep in mind that for a pavement marking material to be evaluated, it must conform to the following:

- **Permanent Materials**-candidate material shall be placed on a Northern test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 24 months of NTPEP field test results and installation data available for review.
- **Removable (Temporary) Materials** - candidate material shall be placed on any test deck of the National Transportation Product Evaluation Program (NTPEP) and have a minimum of 6 months of NTPEP field test results and installation data available for review.

Submissions may be sent to:

Maryland State Highway Administration  
Office of Materials Technology  
Pavement Marking Team  
7450 Traffic Drive/Building #4  
Hanover, MD 21076

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