



National Transportation Product Evaluation Program (NTPEP)

PROJECT WORK PLAN FOR GEOTEXTILE MATERIALS FOR HIGHWAY APPLICATIONS

PROGRAM PURPOSE:

- I. To minimize the amount of duplicative geotextile product testing done by AASHTO member departments by providing a process whereby manufacturers/suppliers submit their material to National Transportation Product Evaluation Program (NTPEP) for laboratory testing and evaluation. The results of the testing are published and distributed to each AASHTO member department for purposes of product prequalification.
- II. This work plan is focused on providing test results that can be used by member departments to assess potential compliance with AASHTO M288 or similar materials specifications. The results of this program are "random" single average values for a given property for a given sample of a specific product from a given manufacturer or production line. It may be used to indicate "probable" compliance of a product to a manufacturer's certified MARV values.
- III. The results of this program may be used for initial product qualification and/or quality assurance by individual member departments. NTPEP results do not take the place of manufacturer's quality control, release testing or user's acceptance testing. Product certifications should be supplied by and based on the manufacturer's statistical quality control data.

ABBREVIATIONS & DEFINITIONS:

MARV = The minimum average roll value for the geosynthetic, defined as described in ASTM D4439.. From the user's point of view, the average test result for the roll sampled shall meet or exceed the published MARV.

M_{ax}ARV = The maximum average roll value for the geosynthetic, defined as described in ASTM D4439. From the user's point of view, the average test result for the roll sampled shall meet or be less than the published M_{ax}ARV.

MD = Machine direction of the geotextile

XD = Cross-Machine direction of the geotextile

Product Line = A series of products manufactured using the same polymer in which the polymer for all products in the line comes from the same source, the manufacturing process is the same for all products in the line, the stabilization

package is the same for all products in the product line, and the only difference is in the product weight/unit area or number of fibers contained in each yarn.

INITIAL PRODUCT QUALIFICATION TESTING:

Each product shall be individually tested for each index property listed as included in the initial product qualification testing program in this work plan. However, UV testing (i.e., ASTM D4355) is focused on characterization of the product line. Sampling is generally conducted at the manufacturing facility where the product is produced.

I. Product Information Required for Initial Product Qualification Testing

- A. Geotextile type and structure
- B. Typical lot size
- C. Polymer(s) used for the product
- D. % of post-consumer recycled material by weight
- E. MARV for Permittivity (D4491), Grab Strength MD & XD (D4632), Trapezoidal Tear MD & XD (D4533), 50-mm Puncture (D6241).
- F. M_{ax} ARV for Apparent Opening Size (D4751)

For foreign submissions, MARV and M_{ax} ARV values must be based on ASTM standards.

II. Initial Product Qualification Sampling

- A. Information showing the manufacturer's name description of product: (style, brand name, former names if appropriate, etc.)
- B. Product roll and lot number
- C. Geosynthetic sample of sufficient size to accommodate all specified testing. MD and XD must be noted on the product sample(s)
- D. All sampling shall be conducted by an independent sampler assigned by NTPEP

III. Tests / Practices to be Included for Initial Product Qualification Testing

- A. [ASTM D4751](#) – Apparent Opening Size
- B. [ASTM D4491](#) – Permittivity
- C. [ASTM D4632](#) – Grab Strength
- D. [ASTM D4533](#) – Trapezoid Tearing Strength
- E. [ASTM D6421](#) – Puncture Resistance
- F. [ASTM D5261](#) – Mass/Unit Area
- G. [ASTM D4354](#) – Sampling Practice
- H. [ASTM D4873](#) – Guide for Identification, Handling and Storage of Geotextiles
- I. [ASTM D4355](#) - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)

With the exception of ASTM D4355, every product in the product line submitted will be subjected to each test listed in the above table. For ASTM D4355 testing, only the lightest weight product in the product line will be tested as representative of the product line.

IV. Lab Test Assignment for Initial Product Qualification Testing

Test	New York	TRI
ASTM D4751	X	
ASTM D4491	X	
ASTM D4632	X	
ASTM D4533	X	
ASTM D6421	X	
ASTM D5261	X	
ASTM D4355		X

QUALITY ASSURANCE TESTING:

The purpose of the quality assurance testing is to verify consistency of product used in the USA with the product produced at the sampled manufacturing facility and production line, as well as to verify that the product has not changed since the last time the product was sampled and tested for initial product qualification for the NTPEP program in accordance with this work plan. Sampling could take place at a second production line, a second manufacturing plant, or even at a member department construction project site with the concurrence of that member department. If sampling is conducted at member department construction project site, the purpose of the testing is only for validation of NTPEP initial product qualification test results.

Quality assurance testing may be required for companies and their products submitted to or currently listed by NTPEP for which any of the following are applicable:

- Ownership/management of the product manufacturing facility transferred to or bought by another company
- Product name or style designation has changed
- Manufacturing process(es) has changed or the production line has been upgraded or somehow modified
- Manufacture of the product has been moved to another manufacturing facility or another production line within the same facility
- Products where there are noticeable changes to the product appearance or performance
- Products manufactured outside the USA – products sampled at US distribution/warehouse facility or at member department construction project sites for NTPEP testing
- The same product is manufactured at multiple plants or multiple production lines, requiring QA tests at the other plants or production lines not sampled during initial product qualification testing

I. Product Information Required for Quality Assurance Testing

- A. Geosynthetic type and structure
- B. Typical lot size
- C. Polymer(s) used for the product
- D. % of post-consumer recycled material by weight
- E. MARV for Grab Strength MD and XD (D4632)
- F. M_{ax} ARV for Apparent Opening Size (D4751)

For foreign submissions, MARV and $M_{ax}ARV$ values must be based on ASTM standards.

II. Quality Assurance (QA) Testing Approach

Results from index QA tests will be compared to the baseline values in the NTPEP Report obtained during initial product testing. If the QA results are within acceptable tolerances relative to the NTPEP Report (i.e., the sample test results meet or exceed the MARV, or meets or is less than the $M_{ax}ARV$), the product will continue to remain in the NTPEP Report. If the product name/style designation has changed, the new name will appear with the existing name for three years. This is to allow the existing products to be used by industry and reduce confusion. Re-testing must be done if there is any change in the product. If changes in the product as identified above or identified by other means are such that the validity of the last complete assessment for initial testing is questionable, a complete assessment of the product will need to be completed as identified by the process described in "Data Requirements for Initial Product Acceptance."

III. Quality Assurance (QA) Sampling

- A. Information showing the manufacturer's name description of product: (style, brand name, former names if appropriate, etc.)
- B. Product roll and lot number
- C. Geosynthetic sample of sufficient size to accommodate all specified testing. MD and XD must be noted on the product sample(s).
- D. All sampling shall be conducted by an independent sampler assigned by NTPEP

IV. Tests / Practices to be used for quality assurance testing

- A. ASTM D4751 – Apparent Opening Size
- B. ASTM D4632 – Grab Strength
- C. ASTM D5261 – Mass/Unit Area
- D. ASTM D4355 – Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)

ASTM D4355 may also be included as part of the quality assurance testing if significant changes in the stabilization package are known or suspected. Only the lightest weight product in the product line in which the change in the stabilization package is known or suspected will be tested in this case.

V. Lab Test Assignment for Quality Assurance Testing

Test	New York	TRI
ASTM D4751	X	
ASTM D4632	X	
ASTM D5261	X	
ASTM D4355		X