NTPEP Committee Work Plan for
Evaluation of Chemical Admixtures for Concrete

NTPEP Designation: CADD-02-16
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NTPEP Designation: [CADD]

1 SCOPE

1.1 This project work plan covers the procedures used by the National Transportation
Product Evaluation Program (NTPEP) to evaluate chemical admixtures for addition to Portland
cement concrete.

1.2 The NTPEP is a voluntary program whereby manufacturers may choose to have their products
evaluated for a fee that is used to cover the costs of the evaluation and producing the associated
reports. It is the goal of the NTPEP to eliminate duplicate testing of products by member states by
providing a process where manufacturer / suppliers submit their products to the NTPEP for
evaluation. The NTPEP reports the results of these evaluations to its member states, but does not
accept or reject products. However, transportation officials may choose to use the results of the
evaluations in developing and maintaining an approved products list.

1.3 The NTPEP is a technical service program of the American Association of State Highway and
Transportation Officials (AASHTO). This document and other documents produced by the
NTPEP may not be reproduced without the expressed prior written permission of AASHTO.

1.4 The technical committee shall consist of representatives of NTPEP member states who wish to
actively serve in the evaluation process of chemical admixtures. These representatives shall be
voting members. In addition, it is desired that there be two non-voting industry representatives to
serve as resources to the technical committee. The industry representatives shall not represent the
same company. It shall be the responsibility of industry in general, to elect/nominate its two
members to serve on the technical committee. In addition, at any open meeting, views and
comments of any industry representative may be voiced.

2 REFERENCED STANDARD SPECIFICATIONS

- AASHTO M194 – 13, Standard Specification for Chemical Admixtures for Concrete
- AASHTO T157 – 12, Standard Method of Test for Air Entraining Admixtures for Concrete
- ASTM E1252 – 98(2013), Standard Practice for General Techniques for Obtaining
- Infrared Spectra for Qualitative Analysis
3 EVALUATION

3.1 The evaluation protocol for air entraining agents shall be AASHTO T 157, Standard Method of Test for Air-Entraining Admixtures for Concrete.

3.2 The evaluation protocol for liquid chemical admixtures shall be AASHTO M 194, Standard Specification for Chemical Admixtures for Concrete.

3.3 The evaluation protocol for solid chemical admixtures shall be AASHTO M194, Standard Specification for Chemical Admixtures for Concrete with the following provisions for uniformity testing:

- Specific Gravity shall be noted as “Not Required.”
- A 5% admixture solution shall be prepared to determine the pH:
  Weigh 5.00 ± 0.05 grams admixture into a 150 mL beaker. Add 95.00 ± 0.05 grams of 25 ± 2 °C deionized water to the beaker. Add a stir bar magnet and cover with a watch glass. Using a stir plate, stir the solution for 30 minutes. Remove the watch glass, continue stirring, and measure the pH in accordance with ASTM E70-07(2015), Standard Test Method of pH of Aqueous Solutions with the Glass Electrode.

3.4 Corrosion inhibitors will be accepted by the technical committee for uniformity and equivalence testing. They will be tested and data reported only for the physical properties of the neat material as outlined in Section 4.1.1. The technical committee will not require, review or publish any data pertaining to the performance of the material in hardened concrete.

3.5 The evaluation laboratory(s) shall be selected by the technical committee and may be either a NTPEP member state's laboratory or a private independent laboratory. They shall be inspected by CCRL and accredited by AASHTO for the applicable tests.

3.6 Specialty Admixtures (Type S) will be tested using the standard evaluation protocol without evaluating special properties.

4 MANUFACTURER’S DOCUMENTATION

4.1 Upon submittal to NTPEP, the manufacturer shall complete an on-line NTPEP Product Evaluation Form. Before proceeding with any portion of the evaluation, all documentation submitted by the manufacturer will be reviewed by the technical committee. Should any of the submitted data fail to comply with the specifications, that particular material would not be accepted by the technical committee for evaluation.

4.2 The manufacturer shall certify that as long as a material is furnished under the submitted brand name and designation, the material will be of the same composition and formulation as originally evaluated by the NTPEP.

4.3 The manufacturer will be allowed to change the name of a product without re-evaluation, provided documentation is furnished certifying the composition and formulation is the same as the product evaluated by the NTPEP. Such name changes will be documented in the next NTPEP report and no confirmation testing will be performed unless the manufacturer submits the material through the normal process and pays the subsequent fees.
4.4 If the manufacturer changes the formulation, composition, or concentration or alters the physical properties of a product previously evaluated by NTPEP, but maintains the same proprietary name, the technical committee will require the product to be submitted as though it were new and had not previously been evaluated. In such an event, the manufacturer must notify NTPEP, regardless of whether they elect to re-submit the product, and the technical committee will inform NTPEP members of the product’s name and that the new formulation has not been evaluated by NTPEP.
5 TESTING AND REPORTING

5.1 Testing Laboratory Criteria

5.2 Candidate laboratories to be considered for classification as an authorized testing laboratory for AASHTO/NTPEP shall meet the following requirements:

5.2.1 Facility Requirements:

5.2.1.1 The laboratory shall provide verification that they have experience performing testing of chemical admixtures and air-entraining admixtures for concrete.

5.2.1.2 The laboratory shall provide verification that they have the equipment, facilities, and capability to perform the required testing procedures contained in AASHTO Designation M-194, and T-157.

5.2.1.3 The laboratory shall identify their policies regarding qualifications and training of their staff to insure a high quality level of performance. This shall include performance reviews of testing proficiencies and Standard Operating Procedures for each testing procedure as detailed in the Quality Control /Quality Assurance portion of this document.

5.2.1.4 The laboratory shall identify the administrative procedures that have been implemented to insure a high quality level of comparative results.

5.2.1.5 The laboratory shall complete all admixture identification testing prior to starting the physical testing of AASHTO M 194. The laboratory shall have 30 calendar days to complete the identification testing from the date that samples are received.

5.2.1.6 The laboratory shall provide verification that it is in conformance with Federal and State regulations related to health and safety.

5.2.1.7 The laboratory shall provide verification that it has performed all testing procedures in conformance with requirements of the specified individual test methods. Accreditation by CCRL,(ACI), ISO, or other nationally recognized accreditation programs shall be considered as verification. The laboratory shall maintain the accreditation through the term of the contract.

5.2.2 Personnel Requirements:

5.2.2.1 The laboratory shall provide an organizational chart that identifies the names and positions of management personnel and each person that will be involved in or associated with the testing and the review of the AASHTO/NTPEP reports. A laboratory Quality Control Manager shall be designated for review of all Standard Operating Procedures and Proficiency evaluations of technicians as described.

5.2.2.2 The laboratory shall provide resumes or credentials for all persons indicated in item 1. It is recommended that the responsible person supervising the laboratory and staff performing the testing have adequate levels of formal education. A relevant Bachelor of Science degree is required as a minimum for the responsible person in charge of the laboratory.

5.2.3 Laboratory Testing Capability:
The testing laboratory shall be comprised of a single entity or the combination of not more than three entities. When more than one laboratory is used, a single lead laboratory shall be responsible for the coordination and oversight of all testing, reporting, and for the compilation of the final report in Datamine. The lead laboratory is responsible for identifying the tests that will be subcontracted and for providing the qualification, experience, and quality control programs of each contract laboratory for review and approval of AASHTO/NTPEP.

**5.2.4 Quality Control/Quality Assurance**

The laboratory shall identify the procedures being used to insure a quality level of testing. The process used for quality control should be based upon statistically evaluated conclusions. The conclusions should verify that the laboratory is capable of producing testing results that are accurate and reproducible.

Physical testing proficiencies of all technicians shall be evaluated and documented by the laboratory Quality control manager. These evaluations shall be performed at six-month intervals unless the technician does not routinely perform the test. In this case, proficiency of the technician shall be evaluated and documented prior to testing of admixtures for this program.

The final report issued by the technical committee shall contain the test data generated by the contracted NTPEP laboratory(s).

The lead testing laboratory is responsible for compiling and entering test results in the NTPEP online database.

The results from the NTPEP contracted laboratory(s) of the analysis for uniformity of the neat liquid air entraining agent shall be determined by AASHTO T 157, Air-Entraining Admixtures for Concrete. The results from the NTPEP contracted laboratory(s) of the analysis for uniformity of the neat liquid chemical admixtures agent shall be determined by AASHTO M 194, Chemical Admixtures for Concrete.

If certain tests fall under AASHTO/CCRL accreditation, the laboratory shall be accredited for such tests.

The IR spectrum will be determined using ASTM E 1252-98(2013), section 5.3.1.4 Internal reflection. The method of obtaining the spectrum shall be noted on the uploaded spectrum. In order to maintain confidentiality of proprietary information, it will not be presented in the report.

**6 LEVELS OF EVALUATION**

Level 1 - The manufacturer may elect to submit products for full specification compliance under AASHTO designation M 194-11 to fulfill member states’ requirements to be placed on their Qualified Products list.

Level 2 – Products must be submitted within five years for uniformity and equivalence testing. This evaluation is also required within the five year time frame if the manufacturer requests a name change for the product. The chemical evaluation must indicate the product is the same product (originally submitted for evaluation under Level

To remain on the list for a total of 10 years from completion of initial Level 1 evaluation. If the product is not submitted for uniformity and equivalence testing prior to the beginning of the sixth year after data is completed, the product must be submitted for full Level 1 testing to remain on the listing. At ten years, Level 1 testing will be required to recertify each product.
7 POLICIES FOR WITHDRAWING MATERIALS FROM THE NTPEP EVALUATION PROGRAMS

7.1 All policies for withdrawing Materials from the NTPEP Evaluation Programs are referenced in the National Transportation Product Evaluation Program Standard Operations Guide - Section 2 available at www.ntpep.org.

8 PRODUCT SUBMISSION GUIDELINES

8.1 Product submission guidelines and quantities required for testing will be provided by the testing laboratory upon acceptance of the product application.

8.2 The following information will be required by the manufacturer for product submittals at the time of the application:

- The lot number
- The batch number
- The production location
- The date of production
- The measured chloride content, both a range and specific value
- Solids, both a range and specific value
- Gravity, both a range and a specific value
- pH, both a range and a specific value
- An MSDS form
- A Product Data Sheet
- A Dosage Recommendation Form

8.3 Products should be shipped within thirty days of notice that the product application has been reviewed. The manufacturer shall submit clearly marked samples in durable, sealed containers with all documentation (MSDS, Product Data Sheets, Dosage Recommendations) directly to the testing laboratory.

8.4 The testing laboratory shall notify the Lead State and the AASHTO NTPEP Coordinator of receipt of samples for evaluation.

9 REVIEW OF DATA BEFORE PUBLICATION OR DISTRIBUTION.

9.1 Manufacturers shall have the right to review test data of their product(s) prior to public release. In the event of a disputed result, it may be appealed under the guidelines of the NTPEP policy.

9.2 All data generated by the technical committee shall be subject to NTPEP policy in regard to early release and dissemination to NTPEP member states.

9.3 Data generated by the technical committee may be published by a manufacturer under the guidelines of NTPEP policy.
10.1 Fees shall be determined by the technical committee and shall cover the cost of NTPEP testing and reporting. Current test fees are available on the CADD home page at http://www.ntpep.org or http://data.ntpep.org/.

10.2 Fees shall reflect the level of testing as outlined in Section 5.0 of this work plan.

10.3 An option will be available for products to be designated as “Rush” for a 50% increase in fees.