

GUIDANCE DOCUMENT M: DATA REQUIREMENT GUIDELINES FOR EVALUATING PERFORMANCE ENHANCING ADDITIVES (PEA)

Jurisdiction: Technical Committee P-1

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This Guidance Document is not an AWPA Standard. These are nonmandatory guidelines presented to aid the user in understanding the basic testing requirements for wood protection systems and to assist the AWPA Technical Committees in the development of AWPA Standards. The testing of products in accordance with this Guidance Document does not constitute conformance to any AWPA Standard. No product can be considered to conform to an AWPA Standard until it has been subjected to complete technical review and voting by AWPA's Technical Committees, and procedural review and final action by the AWPA Executive Committee pursuant to the AWPA Technical Committee Regulations.

1. GENERAL INFORMATION AND PURPOSE
2. HOW TO USE THESE GUIDELINES
3. REQUIREMENTS FOR ALL SUBMISSIONS
4. METHODOLOGY FOR GENERATING PERFORMANCE DATA

1. GENERAL INFORMATION AND PURPOSE

The purpose of this Guidance Document is to guide proponents in the type of data necessary to be included in a supporting data package to propose listing of a new Performance Enhancing Additive (PEA) or modify the listing of an existing PEA. A proponent should be familiar with the AWPA preservative standardization process (P Standards) since the evaluation of a PEA is similar to that of a preservative or preservative system. Proponents are encouraged to interact with appropriate Technical Committees early in the testing process. Establishment of a Task Group is highly beneficial for guiding the test process and data package preparation. This document specifies certain data requirements for consideration of new PEAs. While the proponent is expected to provide all data required by this document, it is understood that it may not be possible to develop one or more types of data in some cases. In the event required data is not developed, the proponent shall provide justification for not doing so. Notwithstanding the stated requirements of this document, the appropriate Technical Committee shall be the final arbiter of the type, quantity, and validity of the data needed for the listing of a PEA.

Performance Enhancing Additives (PEA) within the scope of this guideline are defined as any additive that enhances the biological performance (including decay and termite resistance) and reduces the retention of an AWPA standard wood preservative below that of the same preservative without the additive. PEAs are not active ingredients as defined by AWPA and they are not pesticides as defined by US EPA. PEAs have to follow this guideline. Additives that provide additional performance benefits but do not reduce the required preservative retention are not required to follow this guideline.

Examples of PEAs can include water repellents, moisture control stabilizers, bulking agents, antioxidants, chelators, free radical quenchers, potentiators, fixing agents, etc.

Bactericides, moldicides, and other microbiocides are not considered as PEAs.

After standardization of a new PEA, the proponents shall provide yearly data updates to the appropriate Technical Committee on critical field tests for a period of five years. Standards are then evaluated for reaffirmation at 5 year intervals (see AWPA Guidance Document A).

2. HOW TO USE THESE GUIDELINES

To use these guidelines, the proponent should:

1. Select the appropriate Use Categories the PEA will be used (see Section 2 of Standard U1, which describes the different Use Categories).
2. Determine what other information should be included in the proposal and data package by referring to Section 4 of this Guidance Document.
3. Depending on the Use Categories of interest, determine the performance data requirements by referring to Table 1 of AWPA Guidance Document A. This Table is used in conjunction with Section 5 of AWPA Guidance Document A, *Methodology for Generating Performance Data*, which describes the individual data requirements in more detail.

3. REQUIREMENTS FOR ALL SUBMISSIONS

All proposals shall include the following information:

- 3.1 Proposed wording for the additive listing in the appropriate Standard.** The proponent should model the proposed

wording on what is currently used in the relevant Standard.

3.2 Listing of the proposed Use Categories for which the additive is to be used.

3.3 Composition of the additive. Proprietary formulations are allowed, however, the proponent should provide all physical characteristics (Section 3.4 of this Guidance Document) and as much chemical property/composition data as possible so that the Technical Committee can adequately evaluate the additive. When the composition is not disclosed, the additive must be characterized by one or more relevant performance standards. For example, a water repellent additive may be characterized by water repellency using an acceptable testing standard.

3.4 Chemical and Physical properties of the additive. Pertinent information on the chemical and physical properties should be provided. Particular emphasis should be placed on properties that could affect the physical or biological performance of the treated wood, treatability, corrosion and other properties. Examples of relevant chemical and physical properties are miscibility with water and other solvents, viscosity, particle size and particle size distribution, charge type, particle density (for dispersions and emulsions), molecular weight and molecular weight distribution (for polymeric materials), specific gravity, pH, boiling point, and vapor pressure.

3.5 MSDS of the additive and/or preservative with PEA.

3.6 Methods for the Determination of:

A. Additive use rates or concentration in the treating solution and treated wood. If this is not available, appropriate determination method(s) shall be provided.

B. Penetration of additive in the treated wood. If this is not available, at least some field test data (Section 5 of AWWA Guidance Document A) for large test specimens (i.e. 2x4) should demonstrate similar performance enhancement as observed in tests described in Section 5.

3.7 Treatability. Treatability data according to Section 4.1.9 of AWWA Guidance Document A should be provided. At a minimum, data should be provided to demonstrate that the preservative system in the presence of the PEA meets penetration and retention requirements of all applicable AWWA standards.

3.8 Performance data as specified in Table 1 and Section 5 of AWWA Guidance Document A.

3.9 Use of reference controls. When a PEA is used to reduce the required retention of a standard preservative system, the preservative at the reduced retention in the presence of the PEA shall show equivalent or better performance than the preservative at the standard retention. The performance enhancement of a given PEA is dependent on the nature of the preservative or preservative system. The preservative or preservative system must be specified when listing a PEA.

3.10 Test Retentions. Choosing a PEA use rate or retention to be evaluated in performance tests is a critical part of the experimental design. In all cases, it is important to include retentions close to and bracketing projected commercial use retentions of the PEA. For tests that evaluate the fungal and insect resistance of the systems, it is highly desirable to include retentions that bracket the performance threshold of the PEA. See AWWA Standard E7, Section 6.4, for additional general guidance on retentions. Although E7 is aimed at preservative testing, it provides helpful guidelines for the testing of PEAs.

4. METHODOLOGY FOR GENERATING PERFORMANCE DATA

Performance requirements for a new preservative system in combination with a PEA are similar to the general requirements for all preservative systems as specified in Section 5 of AWWA Guidance Document A, *Data Requirement Guidelines for Listing Wood Preservatives in the AWWA Standards*. Some classes of PEAs may only enhance the preservative performance under certain exposure conditions. For example, water repellents may enhance performance for above ground applications but this enhancement would not be observed in a soil block test or a stake test. In this case, the reduced preservative retention due to the presence of PEA only applies to UC1-UC3B and tests related to UC4 recommended in Section 5 of AWWA Guidance Document A would not be necessary.

All PEAs should have appropriate analytical standards for the quantification of the PEA in treating solution and in treated wood. When such methods are not available, other usage or performance based measurement may be acceptable. For example, the retention of a water repellent can be measured by records of the required use rate or gauge retention. Similarly, a PEA that functions by reducing the leaching/depletion of a preservative may be quantified by the degree of leaching/depletion reduction.