



Designation: E2407 – 04 (Reapproved 2015)

Standard Test Method for Effectiveness of Defoaming Agents¹

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1. Scope

1.1 This test method describes a qualitative method for the evaluation of liquid defoaming agents used to control undesirable foam in dilute, aqueous surfactant solutions. This laboratory test method may be applied to aqueous systems containing additional components, such as agricultural chemicals. This method is described using SI units

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard method does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:²

E1116 Test Method for Emulsification Characteristics of Pesticide Emulsifiable Concentrates

E1519 Terminology Relating to Agricultural Tank Mix Adjuvants

3. Terminology

3.1 *Definitions*:

3.1.1 *defoaming agent, n*—a material that eliminates or suppresses foam in the spray tank. **E1519**

3.1.2 *durability, adj*—the degree to which a defoaming agent remains effective over time under foam generating conditions

3.1.3 *foaming agent, n*—a material that increases the volume or stability of the foam formed in a spray mixture

¹ This test method is under the jurisdiction of ASTM Committee E35 on Pesticides, Antimicrobials, and Alternative Control Agents and is the direct responsibility of Subcommittee E35.22 on Pesticide Formulations and Delivery Systems.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

4. Summary of Test Method

4.1 Foam is generated in a high-speed blender with a dilute surfactant solution prior to addition of a defoaming agent to the blender cup. After 1 min of gentle agitation and five min of rest, any remaining foam is measured. The ability of the defoaming agent to reduce foam is expressed as percent foam reduction.

5. Significance and Use

5.1 This test is designed to determine the ability of a material to reduce or eliminate undesirable foam that can be generated during the mixing and application of agricultural chemicals in dilute aqueous mixtures.

5.2 This method is useful for testing liquid defoaming agents, such as “silicone emulsion” or “organic” type defoaming agents. In principle, it might also be used to test dry antifoam agents with minor modifications to the procedure.

5.3 This method could be employed to determine the relative effectiveness of one defoaming agent versus another. It is left to the user of this method to interpret the results with respect to the actual field use of the defoaming agents tested.

5.4 This method assumes that the defoaming agent being tested has sufficient durability to maintain its activity for the duration of the test.

5.5 Sodium lauryl ether sulfate as the foaming agent is described in Section 7, Reagents. If desired the user of this test method may select an alternative suitable foaming agent.

6. Apparatus

6.1 *Blender*—The blender should have a removable 1.2 liter glass cup equipped with a removable stainless steel blade assembly (**Note 1**), and a motor base capable of a no-load speed of 22 000 rpm.

NOTE 1—The blade assembly should turn freely by hand. If it does not, replace the assembly before using this test method.

6.1.1 *Blender assembly*—Plug the power supply cord of the blender into the power outlet of a variable transformer with a 0 to 120V output. Plug the transformer into a 115V ground fault protected (GFCI) power source. Using water, an electronic balance, and a marking pen, mark 50 mL graduations on the glass blender cup, from 200 to 1000 mL. This is easily done by placing the blender cup on the balance, taring the balance,