



Designation: E 2199 – 08

Standard Specification for *Encarsia formosa* Gahan (Hymenoptera:Aphelinidae)¹

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1. Scope

1.1 This specification describes a method for determining whether the quantity of quality of adult *Encarsia formosa* in a shipment adhere to quantity and quality specifications. The test also allows the purity of shipments to be determined. Included are referenced documents, a description of standard terminology, specifications, and the test method.

2. Referenced Documents

2.1 ASTM Standards:²

E 2200 Specification for Information Included with Packaging of Multi-Cellular Biological Control Organisms

3. Terminology

3.1 Definitions:

3.1.1 *critical value*—a number that the test statistic is compared to in order to determine whether the quantity and quality requirement has been met. Critical values depend on the probability of error that can be tolerated and on the number of samples used in the test.

3.1.2 *card*—a sample unit; pupae of *E. formosa* are mounted on cardstock strips that are subdivided into cards.

3.1.3 *package claim*—the number of adults expected to emerge from and leave each card.

3.1.4 *test statistic*—the average number of wasps caught during the flight test expressed as a percentage of the package claim.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *name of product*—*Encarsia formosa* Gahan.

3.2.2 *preferred host and prey*—Greenhouse Whitefly, *Trialeurodes vaporariorum* (Westwood).

3.2.3 *life stage when shipped*—pupa within the host insect, *T. vaporariorum*.

4. Classification

4.1 *Phylum*—Arthropoda.

4.2 *Class*—Insecta.

4.3 *Order*—Hymenoptera.

4.4 *Family*—Aphelinidae.

4.5 *Genus*—*Encarsia*.

4.6 *Species*—*formosa*.

5. Quantity and Quality Specification

5.1 The test described in this specification is used for both the quantity and quality assessment. To meet the quantity and quality specification defined by the “package claim,” 100 % of the number of adults should be capable of flight as measured by the flight test described herein.

6. Purity

6.1 The purity specification is that shipments, and hence samples, do not contain species other than *E. formosa*.

TEST METHOD—Determining the Number and Flight Capability of *E. formosa* Adults in a Shipment, and Assessment of Shipment Purity

7. Scope

7.1 The test describes methods for determining whether the number of adult *E. formosa* that are capable of flight meets or exceeds the package claim. A method of assessing the purity of a shipment is included.

8. Summary of Test Method

8.1 The quantity of *E. formosa* per card and their flight ability is determined by counting the number of wasps caught on a sticky trap suspended in a test chamber. Three or more test chambers are used per shipment, each chamber contains one randomly chosen card with *E. formosa* pupae. The numbers of

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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.