

SEMI G67-0996 (Reapproved 0318)

TEST METHOD FOR THE MEASUREMENT OF PARTICLE GENERATION FROM SHEET MATERIALS

This Standard was technically approved by the Assembly & Packaging Global Technical Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on August 18, 2017. Available at www.semiviews.org and www.semi.org in March 2018; originally published September 1996; previously published August 2011.

NOTICE: This Standard or Safety Guideline has an Inactive Status because the conditions to maintain Current Status have not been met. Inactive Standards or Safety Guidelines are available from SEMI and continue to be valid for use.

NOTICE: Paragraphs entitled 'NOTE:' are not an official part of this Standard or Safety Guideline and are not intended to modify or supersede the official Standard or Safety Guideline. These have been supplied by the global technical committee to enhance the usage of the Standard or Safety Guideline.

1 Purpose

1.1 This Test Method describes a procedure to measure particles on sheet materials.

2 Scope

2.1 This Test Method may be used for the measurement of particles on items such as:

- Leadframe Interleaves,
- Cleanroom Paper, and
- Packing Material.

2.2 The procedures described may be used by the material manufacturer for quality control or by a customer at incoming inspection.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Documents

3.1 None.

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

4 Terminology

4.1 None.

5 Summary of Test Method

5.1 This Test Method is based on measuring a background particle count in a clean enclosure and then measuring the increased particle count when items under test are submitted to handling operations likely to generate particles.

6 Interference

6.1 Care must be taken to avoid contaminating the clean bench when sheet materials are placed inside. All external packaging material shall be removed and the internal packaging shall be cleaned by appropriate means prior to placing inside the bench.

6.2 A method of cutting the specimens to size, if performed, must not add to, or detract from, the contamination levels on the sheet materials.

6.3 Care must be taken to avoid contaminating the specimens from the human body and clothes when the sheet materials are prepared for the test method.

7 Equipment

7.1 Particle Counter and Recorder

7.2 Clean Bench with Full Gloves and a Dust Particle Measurement Port — Refer to Figure 1.

7.2.1 Air flow speed in the clean bench should be 0.6 m/sec.

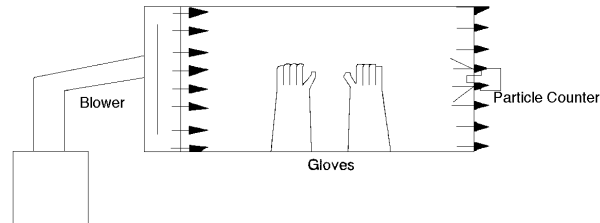


Figure 1
Clean Bench Configuration

8 Sampling

8.1 Sampling plans shall be agreed between user and supplier.

9 Test Specimen

9.1 Specimen size shall be agreed between user and supplier. It is recommended that a 152.4 mm × 203.2 mm (6 in. × 8 in.) test piece be used.

10 Equipment Set-Up

10.1 The particle counter shall be set up with the probe in the clean bench. Calibrate the counter in accordance with the equipment manufacturer's instructions.

10.2 Allow the clean bench to come to equilibrium and perform a background particle count.

NOTE 1: Between each test, allow the clean bench to return to a stable background particle count before proceeding with the next test.

NOTE 2: After several thousand particles have been measured, the clean bench must be cleaned before making the next measurement.

11 Test Procedure

11.1 Place the items to be tested in the clean bench and allow the clean bench to return to a stable background level for particle count.

11.2 Crumpling Test

11.2.1 Crumple a test specimen in gloved hands at the rate of one crumple every 15 seconds and record the maximum particle count.

11.2.2 Record the maximum particle count and the initial background count.

11.3 Friction Test

11.3.1 Place two sheets of the material to be tested face to face and rub together three times in ten seconds.

11.3.2 Record the maximum particle count and the initial background count.

11.4 Tearing and Crumpling Test

11.4.1 Tear a sheet into five pieces at the rate of one tear every five seconds. Crumple the pieces in gloved hands at the rate of one crumple every 15 seconds.