SEMI M45-1110 (Reapproved 0817)
SPECIFICATION FOR 300 mm WAFER SHIPPING SYSTEM

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1 Purpose

1.1 This Standard stipulates transport related materials and systems to minimize the total cost relating to transport of 300 mm wafers from the wafer supplier to the customer.

2 Scope

2.1 This Standard stipulates materials relating to transport of 300 mm wafers using shipping boxes (FOSB) regulated by SEMI M31, and includes wafer shipping boxes, bags, labels, cushions, secondary containers, pallets, and shipping documentation.

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 *SEMI Standards and Safety Guidelines*

SEMI M31 — Mechanical Specifications for Front-Opening Shipping Box Used to Transport and Ship 300 mm Wafers

SEMI T3 — Specification for Wafer Box Labels

3.2 *ANSI Standard*[1]

ANSI/EIA-556-B — Outer Shipping Container Label Standard

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

4 Terminology

4.1 *Definitions*

4.1.1 *bag* — a package used for sealing the outside of the wafer shipping box. Typically two or three types of different plastic film and aluminum film are laminated, and these are usually heat-sealed.

4.1.2 *cushions* — materials placed between the wafer shipping box and secondary container in order to absorb shock during shipping and to stabilize the wafer shipping box within the secondary container.

4.1.3 *label* — the label on the wafer shipping box or items such as bags identifying the product and its manufacturer.

4.1.4 *pallet* — a flat container used for collecting and holding a suitable amount of secondary containers that hold wafers, to make handling with forklifts easier.

4.1.5 *recycle* — to use an already used item for some other useful purpose.

4.1.6 *reuse* — to repeat use of an item in its original shape for the same purpose as initially intended.

4.1.7 *secondary container* — the outermost box of the smallest transport unit. Typically cardboard boxes or similar boxes are used.

4.1.8 *shipping document* — documents required when shipping.

[1] American National Standards Institute, 25 West 43rd Street, New York, NY 10036, USA; Telephone: +1.212.642.4900, Fax: +1.212.398.0023, http://www.ansi.org

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4.1.9 *wafer shipping box* — a box that directly holds the wafers. In this standard, this box is specified by SEMI M31.

5 Requirements

5.1 *Wafer Shipping Box*

5.1.1 Wafer shipping boxes that comply with SEMI M31 must be used.

5.1.2 There are no grounding or ESD requirements for wafer shipping box.

5.1.3 To make sure raw materials are traceable, the product number, revision number, and manufacturing period (year, week) must be displayed on the wafer shipping box main device and door by molding or by a method that cannot be easily erased.

5.1.4 The wafer shipping box door must be designed so that it can be automatically as well as manually opened and closed.

5.1.5 Optional top robotic handling flange or side mounted human handles will not be attached during transport of the wafer shipping box. If required, these items will be applied at the receiving site. The design of these features will allow for quick, lockable attachment to the wafer shipping box.

5.1.6 Wafers must be visible inside when the wafer shipping box is closed.

5.1.7 No tape may be used to seal the wafer shipping box.

5.1.8 The only environment in which wafers can be placed into or taken out of a wafer shipping box bag, as well as the surrounding environment thereafter, is clean room air.

5.1.9 The body and door of the wafer shipping box must be designed to allow for multiple reuse cycles without compromising wafer quality.

5.1.10 After a customer has transferred an accepted wafer to a fab carrier, the wafer shipping box must be returned to the supplier without having used it for any other purpose. The wafer shipping box will be inserted into a bag sealed prior to return to the wafer supplier using the same type bag (agreed upon by supplier and customer).

5.1.11 Each wafer shipping box must be returned only to the supplier that delivered the wafers for which the wafer shipping box was used. A display for the supplier showing the number of times a wafer shipping box was used is optional.

5.1.12 The property rights of wafer shipping box used to deliver wafers and to be returned after unloading belong to the wafer manufacturers.

5.1.13 The wafer shipping box will maintain its dimensional stability throughout its lifetime.

5.1.14 Wafer shipping box materials must be recyclable after useful life.

5.2 *Wafer Shipping Box Bagging System*

5.2.1 It is preferable that the bag material is recyclable, but until a technical solution is found, bags should be easily disposable.

5.2.2 The bagging system must consist of two or more layers of bags. At least one layer must be a moisture barrier.

5.2.3 The use of desiccant between the bag layers is currently optional. Its use must not negatively impact the cleanliness of the bagging system.

5.2.4 Bags may be evacuated optionally. The initial bag ambient, prior to evacuation and sealing, may be temperature/humidity controlled clean room air, clean dry air (CDA), or nitrogen (N2).

5.3 *Wafer Shipping Box and Bag Labeling*

5.3.1 Prepare and apply two identical labels that are in accordance with SEMI T3, with additional requirements as noted below.

5.3.1.1 Label size may be as large as 120 mm × 120 mm.

5.3.1.2 Label data content shall include all the data specified in SEMI T3, including wafer ID and FOSB slot #. Additional data may be added optionally, as agreed to between supplier and user.

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