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Standard Guide for Performance Testing of Applied Stretch Films and Stretch Wrapping¹

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1. Scope

1.1 This guide covers testing of mechanical properties of stretch wrapping films as they have been applied by a stretch wrapper to a unit load or test structure. This guide may be applied to hand-wrapping or to machine-wrapping applications. These tests may be applied to real-world or “field” testing or may be applied to theoretical or “laboratory” testing. This testing does not cover the testing of mechanical properties independent of application by stretch wrapper.

1.2 No statement is made about either precision or bias of any of these test methods since results merely state whether this is in conformation to the criteria for success specified by the user of the test method.

1.2.1 The user is encouraged to establish the precision and bias for their own application.

1.3 The units used in this standard are SI units (metric) with their English equivalents included following them in parentheses.

1.4 These tests are not intended to be applied to agricultural stretch wrapping films and its application.

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

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This guide is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.25 on Palletizing and Unitizing of Loads.

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2. Referenced Documents

2.1 *ASTM Standards*:²

D996 Terminology of Packaging and Distribution Environments

D4649 Guide for Use of Stretch Films and Wrapping Application

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E456 Terminology Relating to Quality and Statistics

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

E1488 Guide for Statistical Procedures to Use in Developing and Applying Test Methods

E2586 Practice for Calculating and Using Basic Statistics

3. Terminology

3.1 *Definitions*—Terminology found in Terminology D996 shall apply.

4. Summary of Practice

4.1 The purpose of stretch wrapping is to unitize a group of products in order to make handling and transport more efficient.

4.2 There are many comparisons that a user of stretch film or a packaging engineer may want to calculate when comparing an original film to an alternative. They include:

4.2.1 Percent stretch of applied film,

4.2.2 Number of revolutions in a wrap pattern,

4.2.3 Time required to wrap a load,

4.2.4 Film thickness,

4.2.5 Film weight applied to load,

4.2.6 Containment force on load,

4.2.7 Compression force on load,

4.2.8 Film stiffness applied to load,

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.