

ASABE S615.2 FEB2022
Cotton Module Cover Material Performance



**American Society of
Agricultural and Biological Engineers**

**S
T
A
N
D
A
R
D**

ASABE is a professional and technical organization, of members worldwide, who are dedicated to advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the American Society of Agricultural and Biological Engineers to meet standardization needs within the scope of the Society; principally agricultural field equipment, farmstead equipment, structures, soil and water resource management, turf and landscape equipment, forest engineering, food and process engineering, electric power applications, plant and animal environment, and waste management.

NOTE: ASABE Standards, Engineering Practices, and Data are informational and advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. The ASABE assumes no responsibility for results attributable to the application of ASABE Standards, Engineering Practices, and Data. Conformity does not ensure compliance with applicable ordinances, laws and regulations. Prospective users are responsible for protecting themselves against liability for infringement of patents.

ASABE Standards, Engineering Practices, and Data initially approved prior to the society name change in July of 2005 are designated as "ASAE", regardless of the revision approval date. Newly developed Standards, Engineering Practices and Data approved after July of 2005 are designated as "ASABE".

Standards designated as "ANSI" are American National Standards as are all ISO adoptions published by ASABE. Adoption as an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by ASABE.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

CAUTION NOTICE: ASABE and ANSI standards may be revised or withdrawn at any time. Additionally, procedures of ASABE require that action be taken periodically to reaffirm, revise, or withdraw each standard.

Copyright American Society of Agricultural and Biological Engineers. All rights reserved.

ASABE, 2950 Niles Road, St. Joseph, MI 49085-9659, USA, phone 269-429-0300, fax 269-429-3852, hq@asabe.org

Cotton Module Cover Material Performance

Developed by the ASABE Cotton Engineering Committee, PM-23/7/3. Approved by the ASABE Power and Machinery Division. Adopted as an ASABE standard August 2012; revised December 2013; reaffirmed November 2018; revised February 2022.

Keywords: Cotton, Exposure, Flexure, Module, Moisture resistance, Performance

1 Scope

1.1 This standard was developed and applies to material covers for rectangular-shaped and cylindrical cotton modules.

1.2 This performance standard applies to materials used to manufacture covers intended to protect cotton modules after harvest from rain and wind exposure during outdoor storage by minimizing the fiber quality damage and fiber loss that can occur under poor storage conditions.

1.3 Rectangular module covers are typically used over multiple harvest seasons where they experience exposure to wind and ultraviolet (UV) radiation (sunlight). For rectangular module covers, mechanical motion from wind and other sources has been found to be the dominant factor contributing to material degradation. This standard specifies a minimum ability to maintain water penetration resistance following mechanical flexing for rectangular module covers.

1.4 Rectangular module cover materials may be constructed of natural or man-made fibers, tapes, film (woven or extruded) or a combination of fibers that may be coated and have UV inhibitors added. Although some covers will include sections of materials that are connected by seams, reinforcements, and/or have fused intersections and have grommets inserted to tie down or secure the cover onto a cotton module with ropes or cords, this performance standard only applies to the material used to form the top surface of the rectangular module cover. For cylindrical module covers, this performance standard applies to single layer and combined layer, natural or man-made materials as specified.

1.5 The physical test requirements for materials used in rectangular module covers are those that can predict functional protection and reasonable durability for extended periods of use. The tests for rectangular covers are intended to evaluate the degradation of resistance to water penetration after repeated mechanical flexing (similar to wind motion).

1.6 Plastic film covers used on cylindrical modules are single use covers that are applied under tension to protect and restrain the cotton in cylindrical form. Unlike rectangular module covers, degradation due to wind exposure is not a primary concern for cylindrical module covers. For cylindrical module covers, the primary focus is on puncture, tear, impact resistance, and the ability to provide structural stability to the module.

1.7 For cylindrical module covers, this performance standard is focused on single use plastic film covers. The use of other materials is not prohibited; however, the testing protocols in this standard may not be appropriate for other materials.

1.8 The laboratory testing methods specified for cylindrical module covers are intended to evaluate tear, puncture, and impact resistance of the material in multi-layer combinations as applied to a cylindrical module, as these have been common modes of failure for the multi-layer film materials in current use. In-field testing of module cover materials applied to cylindrical cotton modules is intended to evaluate the ability for the cover material system to protect and restrain the cotton under prolonged exposure to environmental effects.