

**TEST METHOD AND
STANDARD PERFORMANCE
SPECIFICATION FOR
NEWLY MANUFACTURED
FOOTBALL PLAYERS GLOVES**

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Prepared By



**NATIONAL OPERATING COMMITTEE
ON STANDARDS FOR ATHLETIC EQUIPMENT**

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1. Scope

- 1.1. This standard specification establishes performance requirements for the friction and adhesion properties of new football player's gloves to football leather as supplied by manufacturers. This standard test method and performance specification is specifically created to limit the level of stick/tackiness of gloves to limit the potential aid these devices may have in handling/catching the ball.
- 1.2. *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Reference Documents

- 2.1. STANDARD TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR/EQUIPMENT, NOCSAE DOC.001
- 2.2. ASTM D1894-90 STANDARD TEST METHOD FOR STATIC AND KINETIC COEFFICIENTS OF FRICTION OF PLASTIC FILM AND SHEETING.
- 2.3. ASTM D3330 STANDARD TEST METHODS FOR PEEL ADHESION OF PRESSURE SENSITIVE TAPE AT 180 DEGREE ANGLE.

3. Terminology

- 3.1. Add-ons: Anything supplied with or recommended by any literature, including point of purchase materials and/or markings and packaging that accompanies for sale gloves. Add-ons may be of any material including liquids, sprays, etc.
- 3.2. Ambient: Normal laboratory environment, 72° F, ± 5° F (22° C, ± 2° C).
- 3.3. Coefficient of friction (COF): The ratio of pull force to contact or holding force. In this standard the holding force is the sled weight plus sample weight.
- 3.4. Component: Any piece, part, or device that accompanies the glove or is part of the glove as offered for sale and may become separated (by design) from other glove components, or must be assembled or attached by the user.
- 3.5. Football Cover (football) Leather: The outer covering of leather removed from a new football of the specific model brand and manufacture specified by the NCAA. If the absence of a single product being specified then the ball licensed by the NFL shall be used.

- 3.6. **Glove:** a covering for the hand having separate sections for each finger. Pads worn on the hand, but not having, separate sections encircling at least part of each finger are not gloves.
- 3.7. **Kinetic coefficient of friction (KCOF):** The average force measured while the sled is moving divided by sled and sample weight.
- 3.8. **Legible:** May be easily read at a distance of not less than 18 inches by an individual with 20/20 corrected vision.
- 3.9. **Model:** See NOCSAE DOC 001 Section 3.25. In addition gloves must have the same color (within limits of production and material variations) on the palm and palm side of fingers to be considered the same model.
- 3.10. **Permanent (Label):** A label, or similar markings, that cannot be readily (1), removed without leaving a trace of its previous existence (2), erased or (3), smudged to the point that it is illegible. If it **requires** chemical or mechanical means such as the use of solvents, abrasives, grinding, etc., to remove a label or marking, than that label or marking is acceptable.
- 3.11. **Static coefficient of friction (SCOF):** The peak force to get the sled moving from stopped divided by the sled and sample weight.
- 3.12. **Transfer:** Material(s) including but not limited to the base material of a glove, dyes, colorants, additives etc, that remain on the football leather after a test.
- 3.13. **Visible:** Can be seen by a person with corrected or natural 20/20 vision from a distance of 18".

4. Samples for Testing

- 4.1. Glove sets new, and as offered for sale to the public, shall be submitted for this test.
- 4.2. At least 5 gloves per model must be tested.
- 4.3. Gloves selected for testing must be selected in a random manner.
- 4.4. If there are any add-ons recommended or supplied with the gloves the gloves must be tested both with and without add-ons. In this case additional samples shall be provided.
- 4.5. Copies of any point of purchase materials.

5. Sample Size.

- 5.1. A statistically relevant sample must be tested¹.
- 5.2. A minimum of three pairs of the largest size per model must be submitted

6. Certification.

- 6.1. See section 6 of NOCSAE DOC 001 for certification requirements.

7. Test Equipment

- 7.1. A load cell, scale or other device for measuring pull force with an accuracy of 0.5 grams
- 7.2. A tensile/compression tester or other device that can apply a force at a constant rate within 3% of any rate specified in the standard.
- 7.3. Weighted footprint for application of the correct load in psi to test samples as in figure 1.
- 7.4. Glove last (sled) as in figure 2

8. Test Methods

8.1. Peel Adhesion Test

Samples of glove material are tested for adhesion to sections of football cover leather, as follows:

- 8.1.1. Sample preparation. Glove material from the palm or the actual finger of a glove shall be removed and trimmed to size based on weight but must be $\frac{3}{4}$ " to 1- $\frac{3}{4}$ " wide. The sample shall be without seams. Samples with add-ons or components shall be tested both with and without add-ons and/or components. Such add-ons and or components will be applied as directed by literature that accompanies either the glove or add-on or both. The glove material contact to the football leather must be at least 2 square inches and shall weigh no more than 4 grams.
- 8.1.2. A 2" +/- 1/8" wide strip of football leather pebble side that has not been used in any other test will be put in contact with the glove material exterior or side intended to contact the ball when worn. The glove material finger side is placed on the smooth solid surface of a natural stone surface plate. With all of the glove leather in contact with the

¹ For guidance on what is an acceptable sample size, interested parties can refer to Military Standard 105-E Standard Series, ISO 9000 Standard Series or ANSI/ASQL Standard Series.

football leather, and at least at least a 1-inch "tab" of "football" leather left extending for gripping, the samples are weighted using the weighted footprint at the rate of at least 8.5 psi for four hours. The glove material width shall be within the width of the weighted footprint. The weight is removed and the football leather is gripped by the tab and lifted slowly to vertical and above the surface. If it appears that the surface of the glove material on the surface plate side somehow stuck or adhered to the surface plate, resulting in apparent failure, the test must be repeated with a section of wax paper isolating the glove material from the surface plate.

8.2. Friction Test

Samples of glove material are tested for static and kinetic friction against football cover leather as follows:

- 8.2.1. Sample preparation. Glove material from the palm or the actual finger of a glove can be removed and affixed to the glove last. The sample shall span the flat bottom edge of the last without interference from seams. The sample is clamped to the last with the clamp strip provided. Samples with add-ons or components shall be tested both with and without add-ons and/or components. Such add-ons and or components will be applied as directed by literature that accompanies either the glove or add-on or both.
- 8.2.2. A strip of football leather at least 50% wider than the glove material sample contact surface (bottom of last) is clamped to a horizontal platform. The test specimen, glove material attached to the friction sled (glove last) weighing XXXX +/-2 grams, is pulled across the football leather at a rate of 50 +/-2 mm/min. The peak and average pull force is recorded.
- 8.2.3. The SCOF is determined by calculation.

9. Performance Requirements

- 9.1. When tested in accordance with section 8.1. The glove material must remain on the surface plate or fall off of the football leather as the football leather losses contact with the surface plate.
- 9.2. When tested in accordance with Section 8.2 the SCOF must be 1.5 or less.
- 9.3. When tested in accordance with Sections 8.1 or 8.2 there shall be no visible transfer of material from the glove material to ball leather.

10. Reports

- 10.1. Maintain complete test records for all testing. The records can be stored on paper, electronically or photographically. The test report shall contain the following information.
 - 10.1.1. Name and location of the test laboratory.
 - 10.1.2. Name of Laboratory Technician.
 - 10.1.3. Model and size of each glove tested, name of manufacturer and date of manufacture.
 - 10.1.4. Observed laboratory temperatures.
 - 10.1.5. Peel adhesion test results shall be reported as either pass or fail, comments to include trials, results of each trial and if needed documentation of wax paper barrier usage. .
 - 10.1.6. Friction test results. Report the peak force and post peak approximate average force and record calculated SCOF. Note pass or fail.
 - 10.1.7. Record if any add on, or component was used during the testing.

11. Labels and Warnings

- 11.1. Each glove shall be permanently and legibly labeled or marked in a manner such that the following information can be easily read and is not obscured in any manner.
 - 11.1.1. Name of Manufacturer or a Logo or recognizable mark that is registered and/or trademarked to the manufacturer.
 - 11.1.2. Model Designation.
 - 11.1.3. Size.
 - 11.1.4. Month and Year of Manufacture.

- 11.1.5. A permanent, exact replica of this seal must appear legibly on the exterior wrist opening so as to be accessible, without removal of the glove, to the referee for inspection. If the label is stitched to the glove it must be positioned/positionable such that this information is visible and legible.



NOTE: You must have an executed, valid license agreement with NOCSAE to use any of the NOCSAE logos at any time. NOCSAE, the NOCSAE seals/logos, and the National Operating Committee on Standards for Athletic Equipment are registered marks and the exclusive property of the Committee. Use of the marks in any manner is prohibited without prior written permission of the NOCSAE Board of Directors. In place of manufacturer certifies the manufacturer may use it's own name i.e., xyz company certifies "MEETS NOCSAE STANDARD" This seal maybe scaled so long that it remains legible.

- 11.2. Packaging and/or instructional literature for gloves shall be permanently and legibly marked in a manner such that the following information can be easily read.

- 11.2.1. Information that warns the user that the glove can be altered by contact with common substances and that this alteration may or may not be visible to the user. Such alteration may effect NOCSAE certification. This information should also list any recommended cleaning agents or procedures, or both that can be used without altering glove performance.

This standard is subject to revision at any time by the responsible technical authority and must be reviewed every five years and if not revised either reapproved or withdrawn. Your comments are invited either for revision, modification or creation of additional standards and should be addressed to NOCSAE's Executive Director. Check the web at www.nocsae.org to obtain the latest version of a standard.

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Figure 1

TBD

Figure 2

TBD