STANDARD PERFORMANCE SPECIFICATION FOR NEWLY MANUFACTURED LACROSSE BALLS

NOCSAE DOC (ND) 049-19

Prepared By

NOCSAE

NATIONAL OPERATING COMMITTEE
ON STANDARDS FOR ATHLETIC EQUIPMENT

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1. Scope

1.1. This standard specification establishes performance requirements in the weight, compression deflection load, circumference, and coefficient of restitution for new lacrosse balls as supplied by manufacturers. The requirements of this standard shall be subject to Equipment Level 2 compliance criteria unless otherwise stated herein.

1.2. This standard does not purport to address all of the safety problems 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. Referenced Documents

2.1. NOCSAE DOC (ND) 001: *Standard Test Method and Equipment Used in Evaluating the Performance Characteristics of Headgear/Equipment*

2.2. NOCSAE DOC (ND) 021: *Standard Projectile Impact Test Method and Equipment Used in Evaluating the Performance Characteristics of Protective Headgear/Projectiles*

2.3. ASTM F 1888: *Standard test method for compression-displacement of baseballs and softballs*

2.4. ASTM F 1887: *Standard test method for measuring the coefficient of restitution (COR) of baseballs and softballs*

3. Test Sample Size

3.1. See Sections 6 and 11, ND 001, for QC/QA protocol testing.

3.2. For any standalone test report; At least one dozen (12) balls of each model must be tested.

4. Conditioning

4.1 Prior to testing, condition each ball for a period of not less than 24 hrs. at laboratory conditions which shall be at a temperature of 72 ± 4 °F and a relative humidity of 50 ± 20 %. Record the temperature to the nearest degree and the relative humidity to the nearest percent at the time of testing on the report form for each test series.

5. Test Procedures

5.1 Ball Mass

5.1.1 Place the ball on the center of the scale with a minimum resolution of 0.005 oz. and record its weight.

5.2 **Ball Circumference**

5.2.1 Measure the diameter of each ball twice. The readings must be taken 90° ± 5° apart.

5.2.2 Compute the circumference of each ball at each diameter and divide by two; the result is the ball's average circumference.

5.3 **Ball Compression (C-D)**

5.3.1 Ball compression testing is to be conducted following the procedures in F1888 with the following exceptions:

5.3.1.1 Ball conditioning and laboratory conditions are to be per Section 4.

5.3.2.1 Place the ball in the compression device to compress the ball with its parting line (if any) approximately parallel to the compression platens.

5.3.3.1 Activate the compression press until the upper plate is in contact with the ball with less than 0.05 lbs. load applied to the ball.

5.3.4.1 Take the average of the two diameters measured in Section 5.2.1 and compute the distance required to compress the ball to 25% of its average diameter. Compress the ball to a displacement of 25 ± 0.05% at a constant rate of 1 in. per minute ± 3% and record the load force applied.

5.4 **Ball COR**

5.4.1 Ball COR testing is to be conducted following the procedures in F1887 with the following exceptions:

5.4.1.1 Ball conditioning and laboratory conditions are to be per Section 4.

5.4.2.1 The ball-throwing device shall be set to deliver the ball at 60.0 ± 3% mph to the strike plate.

5.4.3.1 A suitable method for determining the trajectory of the ball while it travels through the light gates before and after impact with the strike plate shall be utilized. Any trajectory deviation determined to be greater than 6 inches shall be invalid.

6. Performance Requirements

6.1 The ball must be of a smooth or slightly textured (no seams), solid, elastomeric material. Embossing of data and logos is allowed.

6.1.1 For purposes of this section, smooth or slightly textured shall mean the ball shall not be systematically dimpled or have any raised ridges of any sort. Exceptions are flashings from parting lines and remnants from injection gate. Solid means the ball shall be of homogenous construction and lacking an intentional air space.

6.1.2 A slightly textured ball shall have a surface texture depth of no more than 0.007” or 0.17mm. Texture depth may be provided in a form of an affidavit from the tool maker who provided the texture. In the absence of such an affidavit the texture of the ball must be measured with an accuracy of not less than 0.0005” and an uncertainty of measurement not to exceed 0.001”

6.2 The weight value must be within 5.0 to 5.25 oz.

6.3 The circumference value must be within 7.75 to 8.0 in.

6.4 The C-D at 25% displacement must be within 130 ± 20 lbs.

6.5 The COR values must be within 0.60 to 0.70.

7. Labels and Warnings

7.1 In addition to the projectile labeling requirements of ND 021 Section 9, a permanent replica of the NOCSAE seal must appear legibly on the exterior of the packaging.

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.

MAY 2012 MODIFICATIONS/REVISIONS

- Clarified section 3 for standalone test report

AUGUST 2012 MODIFICATIONS/REVISIONS

- Updated section references to ND001 and ND021

DECEMBER 2012 MODIFICATIONS/REVISIONS

- REVISION: Changed ambient conditioning temperature range for consistency.
- Removed references to non-English units

JANUARY 2014 MODIFICATIONS/REVISIONS

- REVISION: Changed ball C-D value range

OCTOBER 2014 MODIFICATIONS/REVISIONS

- Updated document to include level of compliance requirements.
- Added Date specification becomes effective
- Updated title name of NOCSAE DOC. 001
- Added SEI Certification NOCSAE Logo to Section 7, “Labels and Warnings”

JUNE 2015 MODIFICATIONS/REVISIONS

- REVISION: Changed ball C-D value range

MAY 2016 MODIFICATIONS/REVISIONS

- Modified expression of CD tolerance range section 6.4 for clarity.

MARCH 2017 MODIFICATIONS/REVISIONS

- Corrected SEI Certification NOCSAE Logo to Section 7, “Labels and Warnings”

JUNE 2017 MODIFICATIONS/REVISIONS

- REVISION: Reduce equipment level compliance criteria from Level 3 to Level 2.
- REVISION: Changed C/D pass/fail from 132.5 lbs ± 17.5 to 130 lbs ± 20 in Section 6.4.
- Removed Typo in Section 3.1

JANUARY 2019 MODIFICATIONS/REVISIONS

- Added “slightly textured” to Sections 6.1 and 6.1.1.

FEBRUARY 2019 MODIFICATIONS/REVISIONS

- REVISION: Added Section 6.1.2