

**STANDARD PERFORMANCE  
SPECIFICATION FOR NEWLY  
MANUFACTURED LACROSSE BALLS**

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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 in the weight, compression deflection load, circumference, and coefficient of restitution for new lacrosse balls as supplied by manufacturers.
- 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. STANDARD DROP TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR, NOCSAE DOC.001
- 2.2. STANDARD PROJECTILE IMPACT TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR/PROJECTILES, NOCSAE DOC.021
- 2.3. STANDARD PERFORMANCE SPECIFICATION FOR NEWLY MANUFACTURED LACROSSE FACE PROTECTORS, NOCSAE DOC.045
- 2.4. ASTM F 1888 TEST METHOD FOR COMPRESSION-DISPLACEMENT OF BASEBALLS AND SOFTBALLS
- 2.5. ASTM F 1887 STANDARD TEST METHOD FOR MEASURING THE COEFFICIENT OF RESTITUTION (COR) OF BASEBALLS AND SOFTBALLS

## 3. Sample Size

- 3.1 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  $70 \pm 5$  °F ( $21 \pm 5$  °C) and a relative humidity of  $50 \pm 20$  %. 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  $90^\circ \pm 5^\circ$  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 (test room) 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  $25 \pm 0.05\%$  at a constant rate of 1 in. per minute  $\pm 3\%$  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 (test room) conditions are to be per section 4.

5.4.2.1 The ball-throwing device shall be set to deliver the ball at  $60.0 \pm 3\%$  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 ins. shall be invalid.

## **6. Performance Requirements**

### **6.1 Ball Performance Characteristics**

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

6.1.1.1 For purposes of this section, smooth 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 The weight value must be within 5.0 to 5.25 oz.

6.1.3 The circumference value must be within 7.75 to 8 in.

6.1.4 The C-D at 25% displacement must be within  $195 \text{ lbs} \pm 15\text{lbs}$  ( $99.45 \text{ kg} \pm 6.8 \text{ kg}$ ).

6.1.5 The COR values must be within 0.60 to 0.70.

## **7. Labels and Warnings**

7.1 In addition to the requirements of section 9.7 of NOCSAE DOC.021, Projectile labeling, labeling must also include the following.

7.2 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. In place of manufacturer certifies the manufacturer may use it's own name i.e., xyz company certifies "MEETS NOCSAE STANDARD"

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