

**STANDARD PERFORMANCE
SPECIFICATION FOR NEWLY
MANUFACTURED YOUTH BASEBALLS**

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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 youth baseballs as supplied by manufacturers.
- 1.2. This standard has three levels of performance. Level 1 is designated for children with the lowest skill level. Level 2 is designated for youths with moderate skill levels. Level 3 is designated for youths and older with advanced skill levels.
- 1.3. 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. ASTM F 1888 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. 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 ± 5 °F (21 ± 5 °C) 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 between the seams and at the seams. The readings must be taken $90^\circ \pm 5^\circ$ apart.

5.2.2 Compute the circumference of each ball between the seams (seam and stitching are not part of this measurement) and at (on) the seams (the seam and stitching in two locations on opposite sides of the ball are included in this measurement) and divide by two, the result is the balls average circumference.

5.3 Ball Compression (C-D)

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

5.3.1 Place the ball in the compression device to align the central axis of the device with the center of the ball. Randomly orient the ball so that compression occurs between ball seams.

5.3.2 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.

5.3.3 Set the compression displacement gage reading to zero.

5.3.4 Compress the ball to a displacement of 0.25 ± 0.01 in 12 to 15 seconds, at a constant rate and record the load force applied.

5.4 Ball COR

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

5.4.1 The ball-throwing device is set to deliver the ball at $60.0 \pm 3\%$ mph to the strike plate. Each ball is propelled at the strike plate a minimum of 6 times and a maximum of 12 times with a 30 s rest time between impacts. The inbound reading and the rebound reading are recorded for each impact. Only those impacts with the inbound velocity within 60.0 ± 2 mph, and not deviating greater than 6 ins. while traveling through the light gates before and after impact with the strike plate, shall be valid.

5.4.2 Ball COR is calculated as the rebound velocity divided by the inbound velocity. The average of six valid COR for each ball is used to determine the individual ball COR.

6. Performance Requirements

6.1 Level 1.

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

6.1.2 The circumference value must be within 9.0 to 9.25 in.

6.1.3 The C-D at 0.25 in displacement is not to exceed 45 lbs.

6.1.4 The COR values must be within 0.45 to 0.55.

6.2 Level 2.

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

6.2.2 The circumference value must be within 9.0 to 9.25 in.

6.2.3 The C-D at 0.25 in displacement must be within 75 to 150 lbs.

6.2.4 The COR values must be 0.50 to 0.55.

6.3 Level 3.

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

6.3.2 The circumference value must be within 9.0 to 9.25 in.

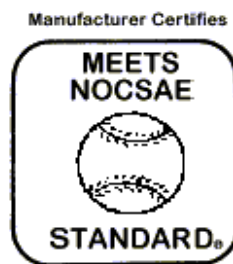
6.3.3 The C-D at 0.25 in displacement must be within 200 to 350 lbs.

6.3.4 The COR values must be 0.50 to 0.55.

7. Labels and Warnings

7.1 See Section 9.7 projectile labeling of NOCSAE Doc. 021

7.2 A permanent, exact 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. 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 its own name i.e., xyz company certifies "MEETS NOCSAE STANDARD"

7.3 The level shall be permanently indicated on each ball and on the exterior of the packaging.

7.4 The approximate (intended) circumference shall be permanently indicated on the ball and on the exterior of the packaging.

7.5 The approximate (intended) weight of the ball shall be permanently indicated on the ball and on the exterior of the packaging.

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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JUNE, 2005 MODIFICATIONS/REVISIONS

- Modified labeling section to reference Section 9.7 on NOCSAE Doc. 021
- Added note to section 7.2
- Modified NOCSAE contact information

DECEMBER, 2006 MODIFICATIONS/REVISIONS

- Added language to clarify tolerances in section 5.1.1 and 5.2.1
- Clarified references in 5.3 and 5.4