



**Purpose:** To approve a bowling ball for use in USBC certified competition.

**Materials:**

- Two bowling balls of the same model submitted for approval testing
  - One sample should weigh 13.00-14.40lbs
  - One sample should weigh 15.00lb or greater
- Completed copy of the Ball Application Worksheet for the ball model being tested
- “USBC Ball Check-In List” Excel file
- Paper sticker labels
- Permanent marker
- Digital camera with USB connection cable
- Photo booth
- SOP-BALL-4 (Total Weight)
- SOP-BALL-3 (Top Weight)
- SOP-BALL-7 (Diameter)
- SOP-BALL-10 (Roundness)
- SOP-BALL-5 (Hardness)
- SOP-BALL-1 (Asymmetrical RG) or SOP-BALL-2 (Symmetrical RG)
- SOP-BALL-11 (Mohs’ Hardness)
- SOP-BALL-8 (CoR)
- SOP-BALL-10 (Surface Roughness)
- SOP-BALL-9 (Kinetic CoF)

**Procedure:**

1. Check-in bowling ball test samples
  - a. Open the “USBC Ball Check-In List” Excel file.
  - b. The “Ball Input Form” will appear. Enter the following information into the appropriate fields in the form:
    - i. **Date** the test sample bowling balls were received
    - ii. **Manufacturer** of the test samples
    - iii. **Brand** of the test samples
    - iv. Model of the test samples under **Ball Name**
    - v. **Serial Numbers** of each test sample
    - vi. Color of the pin of the test samples under **Pin Color**
    - vii. **Shell Type** – the following are acceptable to be entered as the shell type (reference the Ball Approval Application Worksheet that was submitted for the test samples to aid in logging the shell type):
      1. Plastic



2. Urethane
  3. Pearl Urethane
  4. Reactive Resin
  5. Pearl Reactive
  6. Hybrid Reactive
  7. Particle
  8. Hybrid Particle
- viii. Color(s) of the test samples under **Ball Color(s)**
- c. Select “Add Ball”.
  - d. Select “Generate Test Reports”.
  - e. Close the “Ball Input Form”.
  - f. Save the “USBC Ball Check-In List” Excel file.
  - g. Close the “USBC Ball Check-In List” Excel file.
  - h. Select one of the generated test reports from step 1-d.
  - i. Select File>Save As.
  - j. Navigate to the file directory “Product Approvals\Bowling Ball\Ball Approvals\Ball Brand”.
  - k. Create a new folder with the name of the ball model for the test samples.
  - l. Use the following naming convention: “Brand Model SerialNumber” and save the test report.
  - m. Select the second generated test report from step 1-d.
  - n. Select File>Save As.
  - o. Navigate to the file directory Product Approvals\Bowling Ball\Ball Approvals\((Ball Brand))\((Ball Model))”.
  - p. Repeat Step 1-1.
2. Ball Approval Testing – Each measurement test must be conducted individually on both of the bowling ball test samples for approval of that bowling ball model.
- a. By the order listed, follow the first five procedures found in the Materials section (SOP-BALL-4 through SOP-BALL-5).
  - b. Record the results of each test on the test report for the particular test sample.
  - c. Place a paper sticker label on each of the bowling ball boxes and using the permanent marker write the total weight of the individual bowling ball on the labels.
  - d. Place a second paper sticker label on each of the bowling ball boxes and using the permanent marker write the date the test samples were received on the labels.
  - e. Begin following SOP-BALL-1 for each of the sample test bowling balls.
  - f. If the test sample bowling and spins about a constant axis (PSA) in Step 6 of SOP-BALL-1 then continue to follow that procedure. If in Step 6 of SOP-BALL-1, the test sample bowling ball does not settle on an axis and concentric circles are



being drawn around a circumference of the bowling ball, discontinue use of SOP-BALL-1 and proceed to Step 7 of SOP-BALL-2.

- g. Select File>Save AS on the “Bowling Ball Radius of Gyration Worksheet”.
- h. Navigate to “Product Approvals\Bowling Balls\RG #'s”.
- i. Type the RG Swing number and the date as the file name and select “Save”.
- j. Record the Radius of Gyration, in inches, about the three axes on the test report for the particular test sample.
- k. Record the Differential Radius of Gyration, in inches, calculated in the “Bowling Ball Radius of Gyration Worksheet” on the test report for the particular test sample.
- l. If the shell type entered in step 1-b-vii is listed as particle for the test samples, follow procedure SOP-BALL-11.
- m. Record Pass, Fail or N/A of Mohs’ hardness on the test report for the particular test sample.
- n. Follow SOP-BALL-8.
- o. Record the average Coefficient of Restitution and standard deviation on the test report for the particular sample.
- p. Follow SOP-BALL-10 using a brand new 500 grit Abralon pad. Sand the heavier of the two test samples first then without replacing the Abralon pad, sand the lighter of the two test samples.
- q. Select File>Save As on the “Surface Roughness 15 Spot Template”.
- r. Navigate to “Product Approvals\Bowling Balls\Surface Roughness Testing”.
- s. Select the folder named for the current year’s surface roughness testing.
- t. Select the folder named for the current month’s surface roughness testing.
- u. Use the following naming convention: “Brand Model (last 4 characters of the ball’s serial number)” and select “Save”.
- v. Record the average RS surface roughness measurement and standard deviation, in microinches, on the test report for the particular test sample.
- w. Follow SOP-BALL-9.
- x. Select File>Save As on the “COF Form 3-19-10 Master1”
- y. Navigate to “Product Approvals\Bowling Balls\COF’s”.
- z. Use the following naming convention: “COF [Ball Model]-[Ball Model]-....”for each ball that is within that COF worksheet and select “Save”.
- aa. Record the average Kinetic Coefficient of Friction and standard deviation on the test report for the particular test sample.
- bb. Select Save on each test report.

### 3. Photograph a test sample bowling ball

- a. Place the bowling ball in the white photo booth.
- b. Take a picture of the bowling ball using the digital camera.



- c. Connect the digital camera to a computer through a USB cable
  - d. Import the picture of the bowling ball test sample from the camera to the following location: "Product Approvals\Bowling Balls\Ball Photos
  - e. Rename the photo with the Brand and Model of bowling ball.
4. Place the bowling ball test samples into their designated boxes and move them to the bowling ball cage. Bowling balls are stored on the shelves by brand.
5. Finalization
  - a. Generate a letter to the manufacturer and/or brand detailing the approval status of the ball.
  - b. Send invoice, approval letter and test report for both test samples to the manufacturer and/or brand.
  - c. Update the appropriate ball list on bowl.com – See DOC-SPECS-2.