A Future FOR THE Sport

HARDNESS FIELD TESTING RESEARCH REPORT

JULY 2026

25797 1125

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OVERVIEW

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This year has seen the largest scale field data collection we have conducted spanning seven competitions and gathering data on more than 2,600 bowling balls so far.

Key findings:

- Most balls manufactured to the 78D specification remain over 73D in the field test.
- Approximately 1.1% of balls manufactured to the 78D specification tested under the 73D level in the field test.
- Data has been collected across multiple test stand configurations.
- All testing supports that a very small percentage of 78D manufactured balls will test under 73D in the field after use.

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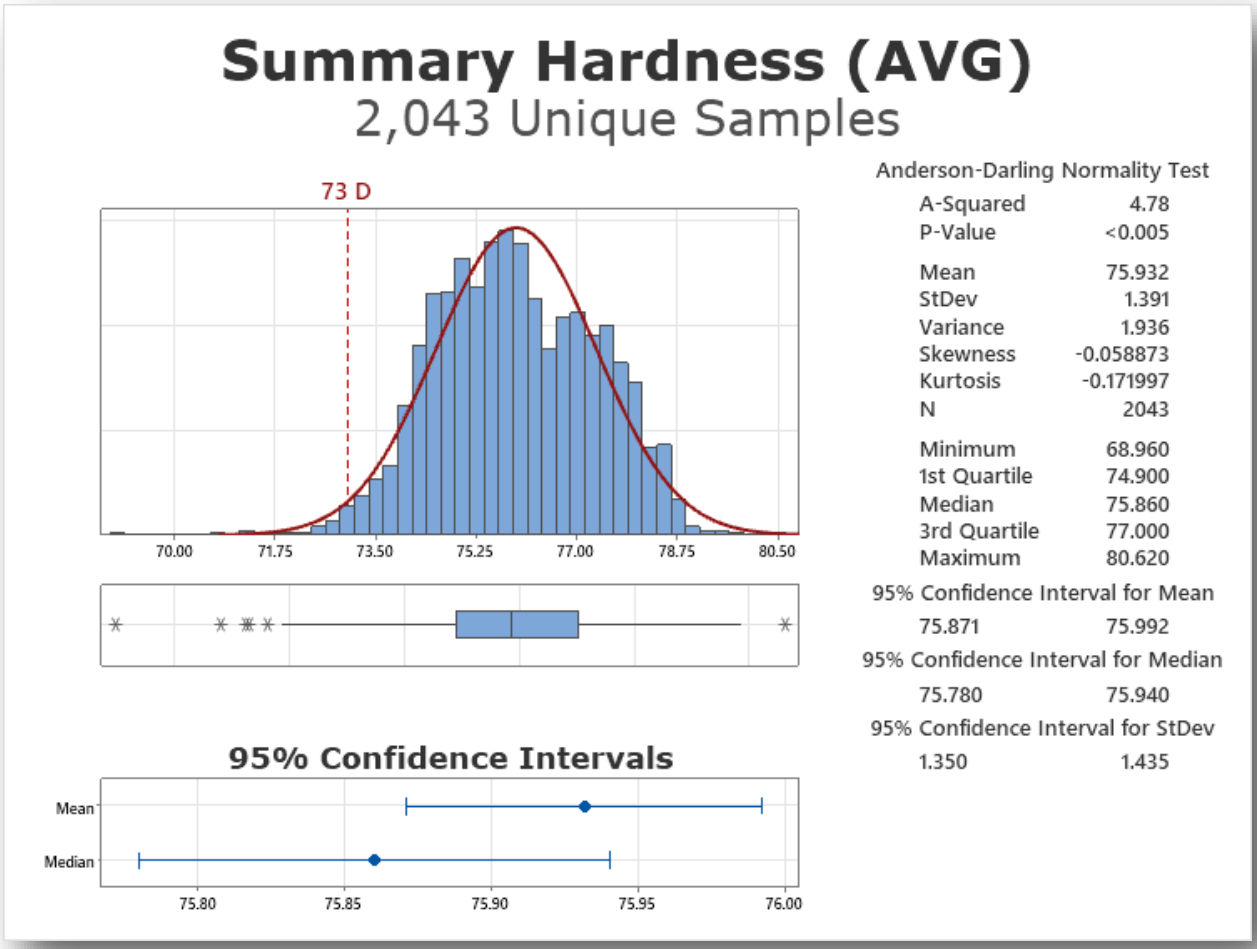
RESEARCH

DATA COLLECTION

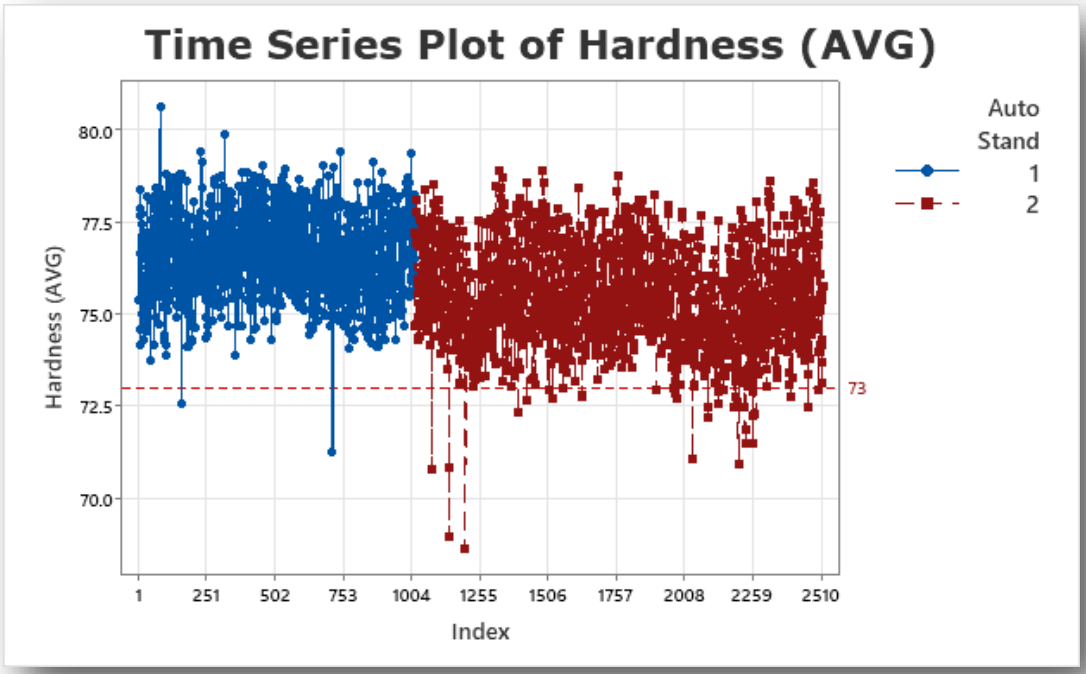
Testing this year incorporated all USBC operated championships where slow oil-absorbing bowling balls could be used. This included Team USA Trials, Senior Queens, USBC Women's Championships, USBC Open Championships, Super Senior Classic, and Senior Masters with testing still to take place at the Youth Open and Junior Gold Championships.

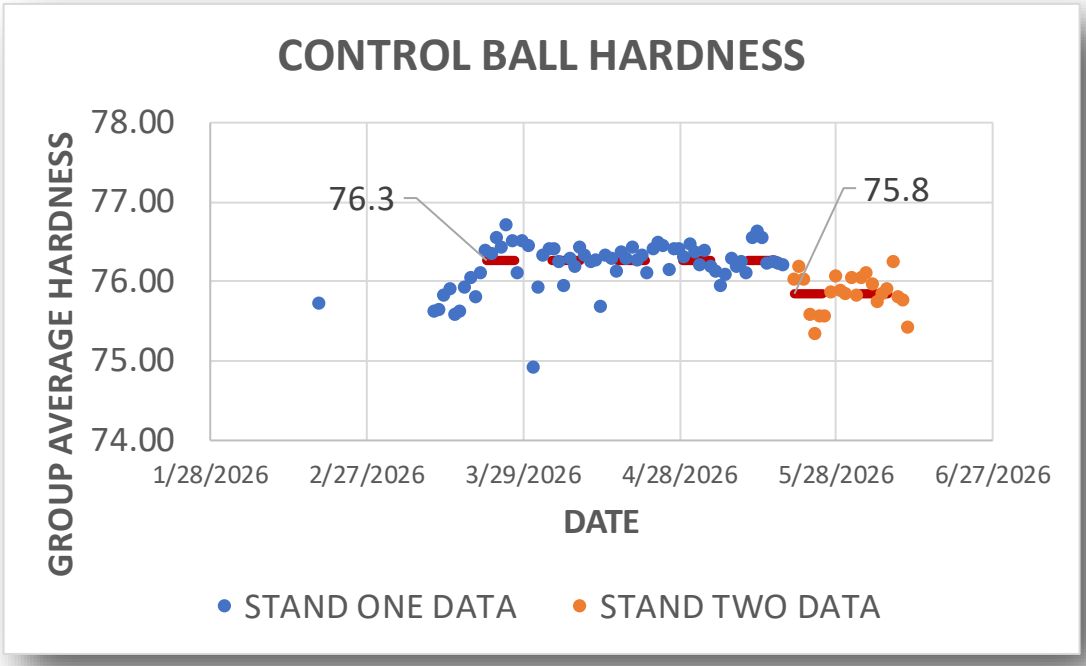
The USBC Open Championships represents the majority of the data, consisting of 92% of the measurements to date. As of June 22, 2026, the testing of eligible slow oil-absorbing bowling balls encompasses 2,514 ball measurements taken across 2,043 unique serial numbers from tournament eligible balls at the Open Championships.

Of those 2,043 bowling balls, 23 (1.1%) tested below 73D.



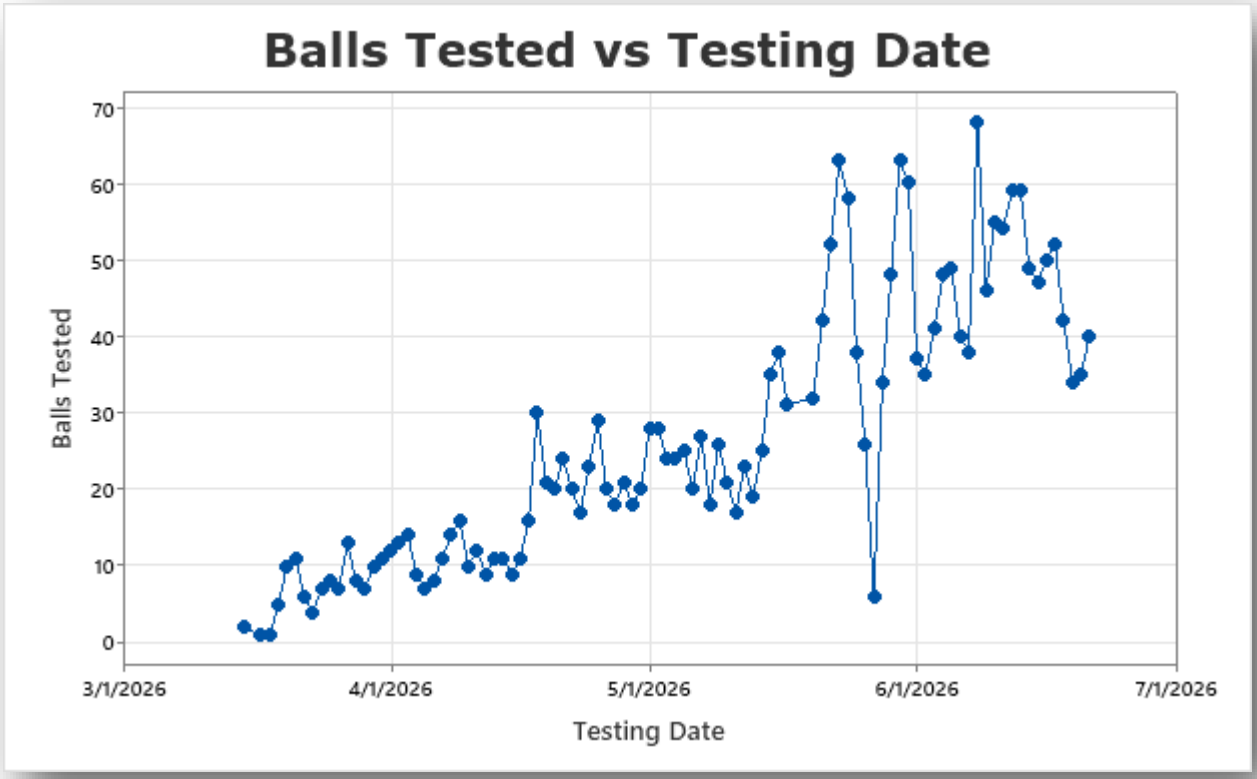
On May 17, 2026, the original auto stand needed to be replaced. A newly purchased stand has been operating in its place since May 20, 2026. The following chart shows a time series plot of the data.





Data from the samples tested, as well as the calibration ball set, show a half point drop when switching to the new stand. This is at least partially due to ongoing design adjustments with the new stands.

Despite the half point disparity, 1.1% of the tested eligible balls tested under 73D.



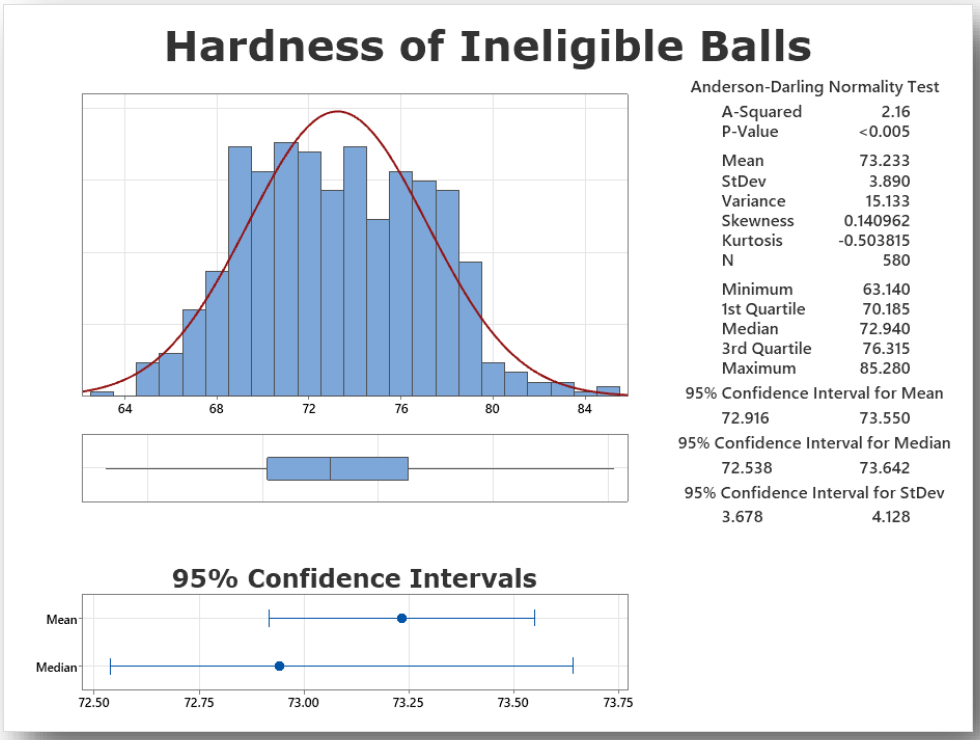
Over the course of the tournament, we have increased the testing volume to both gather more data and determine the tooling required to test all slow oil-absorbing equipment. We started at 1 in 10 bowlers, testing roughly 10 balls per day, moving to 1 in 5 bowlers which increased the number to a little over 22 balls per day, and since May 21 we have been testing all slow oil-absorbing equipment. Resulting in an average of 45.9 balls tested per day.

Extrapolating the average daily rate of balls tested per day across the 149 days the 2027 event will run (from Feb. 27 to July 25, 2027), we expect to test just over 6,840 slow oil-absorbing bowling balls at the 2027 tournament. At a 1.1% rate under 73D, that would be approximately 77 balls that get removed for hardness.

Based on the distribution of the hardness results we collected, we can apply those estimates for any chosen field limit.

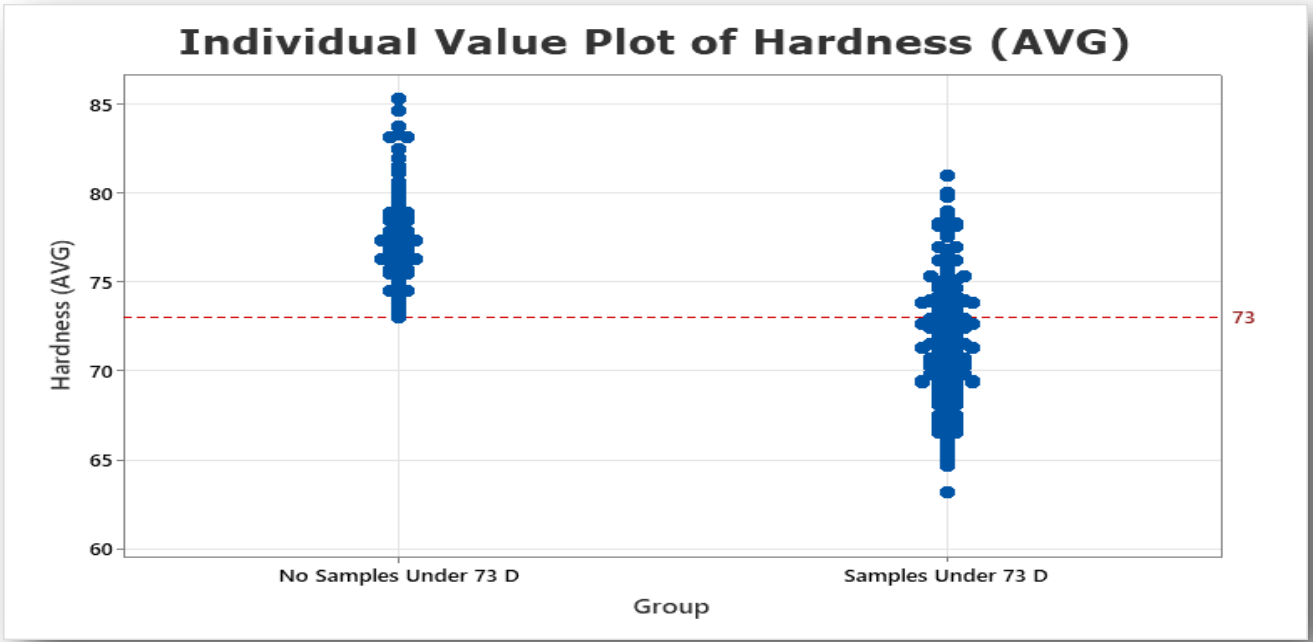
Limit	Balls Measured Under	Percentage	Estimated Balls pulled in 2027
70	1	0.05%	3
71	2	0.1%	7
72	7	0.3%	23
73	23	1.1%	77
74	140	6.9%	469
75	554	27.1%	1,855

In addition to the tournament eligible balls, the squad room also identified and removed more than 580 tournament ineligible balls that arrived at the squad room for competition. These balls included modern urethanes manufactured at a lower hardness and older urethanes that were introduced prior to Aug. 1, 2022.



These 580 ineligible samples spanned 110 different bowling ball models, 23 of those models had samples that measured less than 73D in the field. That is to say that many of these older urethane models remained above 73D.

If you split the data into two groups, ineligible models that have samples under 73D, and models that do not have samples under 73D, the ineligible balls that have samples under 73D have more than 60% of their samples under that level.



ARE THE BALLS STILL GETTING SOFTER?

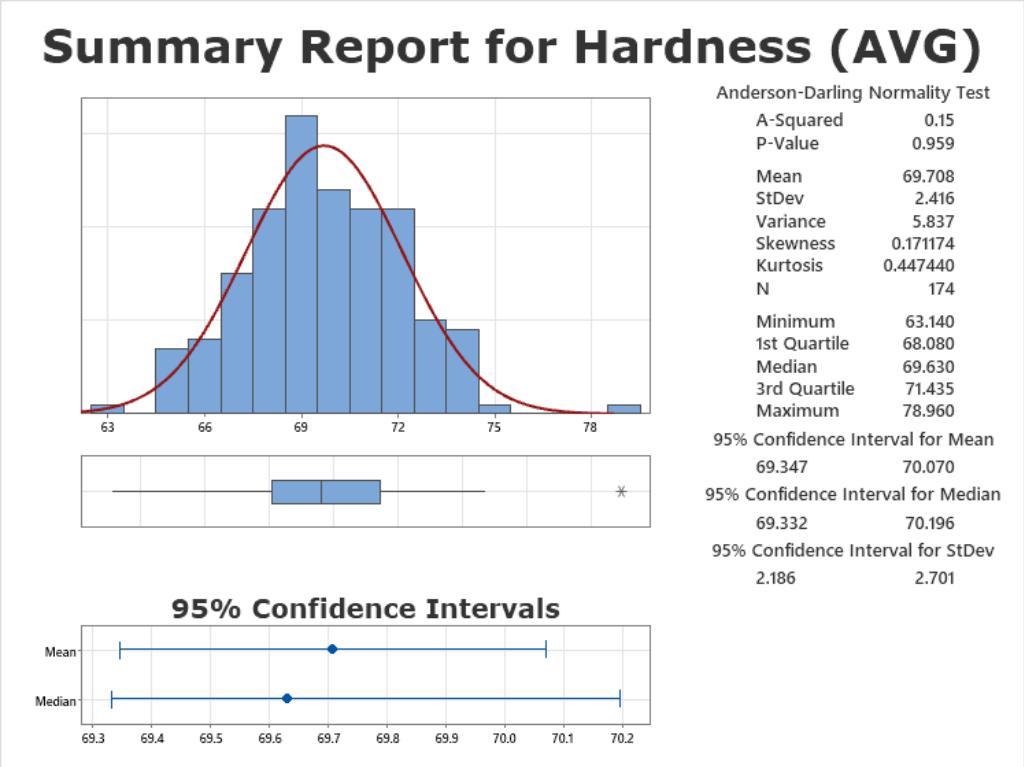
We are going to examine a popular model that had 174 samples go through the squad room that we also have a long period of spot-checking history on out of the box measurements to quantify whether these balls are continuing to get softer.

First, we need to adjust the data to the same level as the ITRC laboratory.

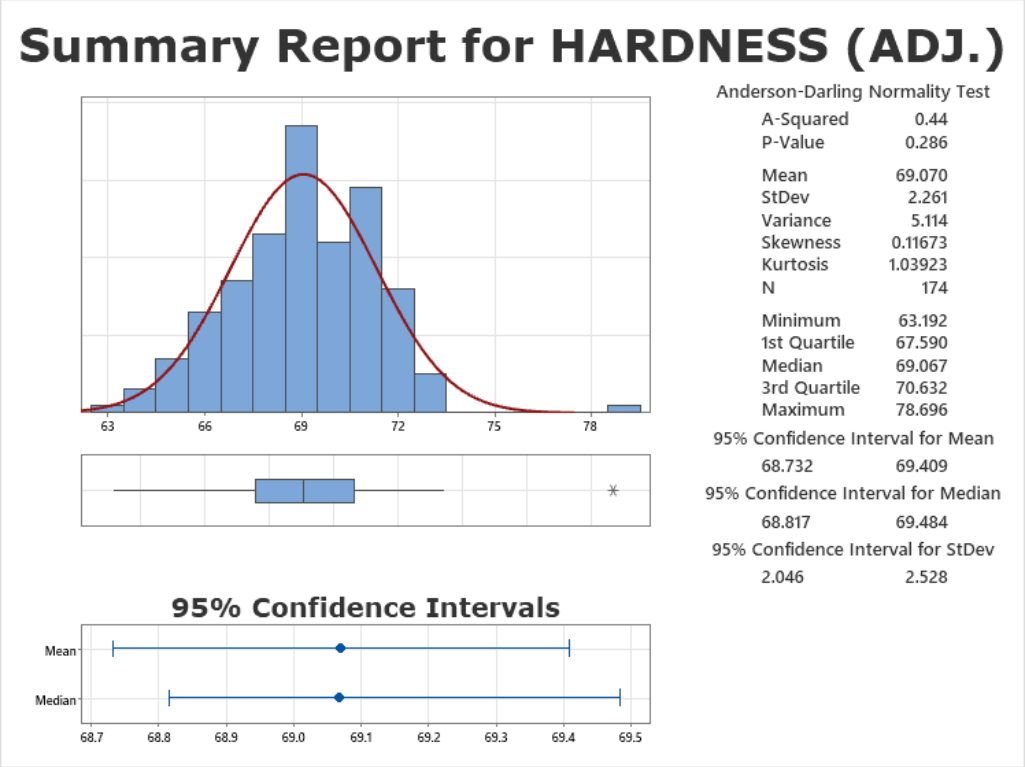
In the ITRC lab, we test equipment in a range from 70 to 77 degrees Fahrenheit. Reviewing the data from June 11, 2020, to now, our average laboratory temperature for bowling balls is 72 F.

We will apply an adjustment to the data based on the sample temperature adjusting to 72 F, then apply a 0.5 D shift to the data taken on or after May 20, 2026, to adjust for the operational stand differences.

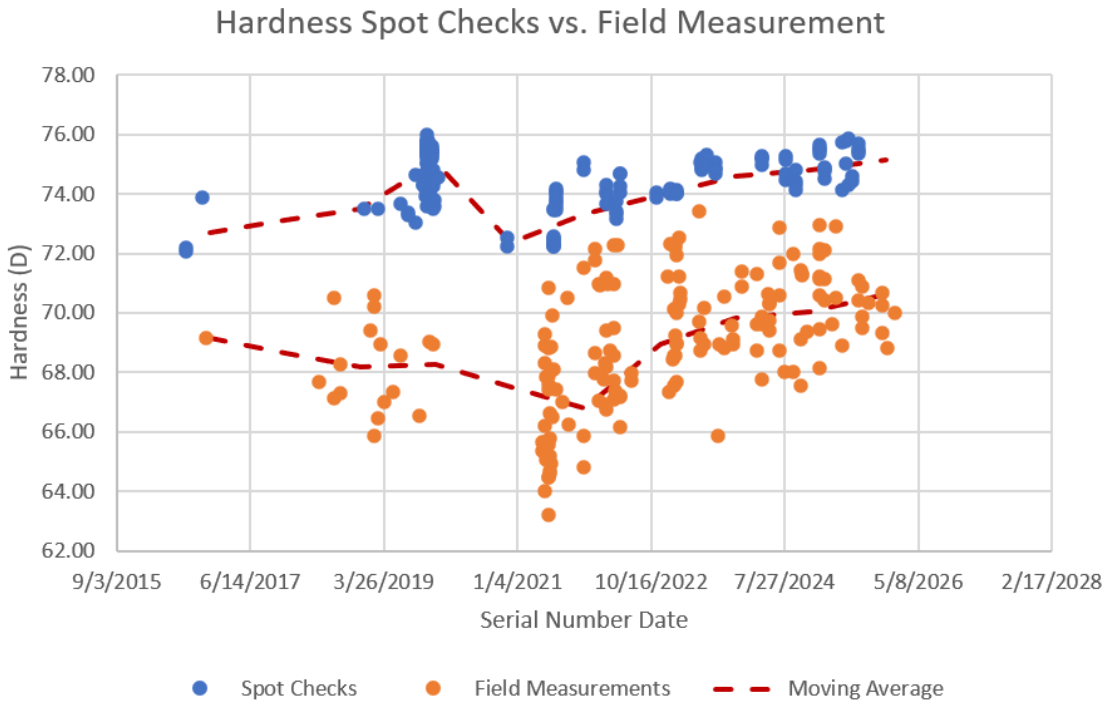
This is a summary report of the model unadjusted. We see a mean of 69.7D, a minimum identified at 63.14D and a maximum of 78.96D



Applying the corrections to the data transforms the results as follows:



63.19D is a new low, and we are measuring balls with a new low every time we measure a new sample in the field. The data suggests these balls are continuing to get softer. Next let's review the data in serial number production order for both these field samples and our spot-checking samples. For this particular model, we spot check samples from distribution often. By decoding the serial numbers, we can tell when these balls were produced. The following shows the field-testing data and the spot-checking data along the timeline of the balls production serial numbers.



Looking at the data this way, we can observe that the final hardness of these balls after use does follow the same trend as the spot checking (out of box hardness). There is significantly more spread in the data from the field than there is from the spot checking. There could be many explanations for that. One of which is that not all these balls have been used equally.

It does appear that more use can lead to more hardness loss. However, with our oldest samples still not being the softest readings it still appears that the change in hardness does bottom out at some point.

CONCLUSIONS

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