

IMPORTANT UPDATE TO YSI TURBIDITY STANDARDS

Background

YSI provides secondary standards for turbidity calibration that utilize styrene-divinylbenzene copolymer beads. These formulations offer a stable alternative to a primary standard, such as formazin, since copolymer bead-based solution does not settle over time. If properly used, calibrations with secondary standards can give good agreement with formazin.

YSI has improved the manufacturing process of our copolymer-bead turbidity standards, utilizing a new bead formulation that is closer aligned to the primary standard, formazin. The improved turbidity solution starts shipping with **Lot 24E###**.

Why did this change occur?

The manufacturing process was updated because the beads used in the previous formulation are no longer available. The new standards still utilize styrene-divinylbenzene copolymer beads; however, these new beads have slightly different optical characteristics due to their different particle size distribution.

What this means for EXO and ProDSS Turbidity Sensors:

The calibration values for the EXO and ProDSS sensors have not changed.

As part of this improvement project, the Smart QC limits of the EXO and ProDSS turbidity sensors were updated. For 3-point calibrations using the 1010 FNU standard, the range for a Green QC score has increased, and the range for a Yellow QC score has decreased. The range for a Red QC score has not changed. The sensor's firmware will need to be updated to take advantage of this update. Please note that a firmware update is only required if you want to use the new Smart QC score limits for a 3-point calibration.

What this means for 6-Series Turbidity Sensors:

The calibration values for the 6136 sensors have changed. It is known that different turbidity sensors read secondary standards differently. This is primarily due to the differing size and configuration of the optics used in the respective sensor types. The YSI 6136 sensor contains larger optical components in a slightly different configuration than the EXO sensor. Thus, the 6136 sensor calibrates to a different turbidity value than the EXO sensor in the same secondary standard solution.



YSI turbidity standard



To keep the standards' calibration values consistent for the EXO and ProDSS sensors, an adjustment to the calibration values for the 6136 sensor was necessary. See the table below for the new 6136 calibration values:

Item No.	OLD Standard Lot Code*	6136 Turbidity Sensor OLD Standard Value	NEW Standard Lot Code*	6136 Turbidity Sensor New Standard Value
607200	24B24009286 and earlier	12.7	24E24011297 and newer	14.2
607300	24B24009095 and earlier	126	24E24010449 and newer	121
607400	24B24009640 and earlier	1000	24E24011567 and newer	934

*Lot codes follow YYMM (year, month) format. A=Jan, B=Feb, etc. (I is skipped). New standards started shipping in May; hence, 24E.

It is important to note that the turbidity measurements of different sensor types (manufacturers/models) can vary from sensor to sensor. This is true for all in-situ style turbidity sensors. This has to do with the unique size and configuration of the optics (LEDs, filters, lenses, photodiodes, etc.) used in the different turbidity sensors.

NOTE: If you use formazin as your calibration standard, your calibration process will not change.

What this means for my data:

In a laboratory setting, the variance between standards is within the normal variation of formazin. For example, if you calibrate one sensor with the previous YSI standard and one sensor with the new YSI standard, the measurement when post-checking in a 100 FNU or 1000 FNU formazin standard will be within the normal variation of formazin.

Additionally, this update has no meaningful impact on the interpretation of your environmental data since many factors, including deployment setup, site-specific geology, bio-fouling, and the unique characteristics of environmental waters influence field turbidity measurements.

Please contact YSI Technical Support if you have any questions:

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