

# CALIBRATION AND VERIFICATION OF THE TL23 TURBIDIMETERS

## Summary:

Gelex Secondary Standards are included with the instrument for calibration verification for labs where IQ/OQ is not required. These Gelex Secondary Standards are used to verify the calibration regularly, but the assigned value of the secondary standards needs to be reset after each calibration with primary standard. Because of this, it is recommended to have "Verify after Cal" turned **off** when using the Gelex Secondary Standards.

IQ/OQ requires verification after calibration using a **10 NTU standard**. The TL23 turbidimeters are set with this as default for customers who require IQ/OQ. However, a 10 NTU standard is not included. If IQ/OQ is required, the **10 NTU standard must be purchased separately** (Hach® PN 2659902).

## Procedure for Gelex Calibration

If IQ/OQ is not required and the 10 NTU standard is not needed, then before calibrating with the Stabcal® Primary Standards the following change is needed:

1. From the home screen select "Verification" from the right-hand menu.
2. Select "Options".
3. Select "Verification Set up".
4. Select "Verify after Cal" and set to "Off".

From here the operator can continue calibration using the Stabcal® Primary Standards included with the instrument following the instructions in the User Manual without being required to verify at the end with a 10 NTU standard.

To use Gelex Secondary Standards for calibration verification (recommended and included), immediately after calibration with primary standards is complete, take a measurement on each Gelex Secondary Standard following the instructions from the User Manual and record the result for each standard.

Once the results for each selected standard is obtained, follow these steps to set the verification to be specific to the values obtained for the Gelex Secondary Standards specific to the current calibration:

1. From the home screen select "Verification" from the right-hand menu.
2. Select "Options".
3. Select "Verification Set up".
4. Select "Verification Standards".
5. Select the number of points. This should be equal to the number of non-Stray light Gelex standards that will be used for routine calibration verification (1-5).
6. Highlight "Standard 1", then select "Edit".
7. Select "Secondary Standard".
8. Enter the recorded result from when that standard was measured following the calibration with primary standard and press "OK".
9. If the acceptance range needs to be changed that can be done (the default is 10%). Otherwise press "OK".
10. Repeat steps 6-9 for each other standard that will be used for routine calibration verification.
11. Select "OK" again and Close to return to the Verification mode.

Hach recommends performing calibration verification daily, but the frequency can be set by the user. If the verification passes within the user set tolerance (default of 10% recommended) then the instrument does not need to be recalibrated with the Stabcal® Primary Standards. If it does not pass, then the instrument should be recalibrated with the Stabcal® Primary Standards.

After each calibration, the above process should be repeated to reassign the values for each Gelex Secondary Standard that is used for routine verification for the new calibration.