

Turbidity Calibration Procedure

Calibrating turbidity measurement instruments is crucial to ensure accurate and reliable results in environmental monitoring, water quality assessment, and various industrial processes. Turbidity is a measure of the cloudiness or haziness of a fluid caused by large numbers of individual particles. Here is a general procedure for calibrating a turbidity meter:

Materials Needed:

Turbidity meter
Turbidity standards (formazin or other standard solutions)
Clean glass or plastic cuvettes
Distilled water
Lint-free wipes or tissue
Pipettes for standard solutions

Procedure:

Prepare Turbidity Standards 4000 NTU Formazin:

- Obtain certified turbidity standards. Formazin standards are commonly used as a concentrate of 4000 NTU or diluted in ratio with distilled water. Mixture of 50% of Formazin in water represents 2000 NTU.
- Ensure the standards cover a range of turbidity values.
- If using formazin, follow the manufacturer's instructions for preparing standard solutions.

Meter Warm-up:

Turn on the turbidity meter and allow it to warm up according to the manufacturer's instructions. Some meters may require a specific warm-up time to stabilize readings.

Cuvette Preparation:

Clean the cuvettes thoroughly with distilled water. Avoid using detergents or substances that may interfere with the measurements.
Wipe the cuvettes with lint-free wipes or tissue to remove any particles or residues.

Calibration:

Fill one cuvette with distilled water as a blank reference.
Insert the cuvette into the turbidity meter and set the instrument to the zero or blank value.
Remove the blank cuvette and replace it with a standard turbidity solution of known concentration.
Record the reading from the turbidity meter for each standard solution.
Create a calibration curve by plotting the known turbidity values against the corresponding instrument readings.

Verification:

Check for linearity in the calibration curve. If the curve is not linear, the instrument may need adjustment or recalibration.
Ensure that the meter readings fall within the specified accuracy range for the instrument.

Adjustment/Calibration Verification:

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Some turbidity meters may have an adjustment feature. If necessary, follow the manufacturer's instructions to adjust the instrument based on the calibration results.

Re-run the calibration with the adjusted settings to verify accuracy.

Routine Checks:

Periodically check the turbidity meter's performance using the calibration standards.

Recalibrate if there are significant changes in readings or if the instrument is not within the specified accuracy range.

Record Keeping:

Maintain a calibration log that includes dates, standard concentrations, instrument readings, and any adjustments made.

Follow the manufacturer's recommendations for calibration frequency.

Always refer to the specific instructions provided by the manufacturer of your turbidity meter, as procedures may vary depending on the model and technology used. Additionally, be aware of any specific requirements or guidelines set by regulatory bodies or quality assurance programs relevant to your application.

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