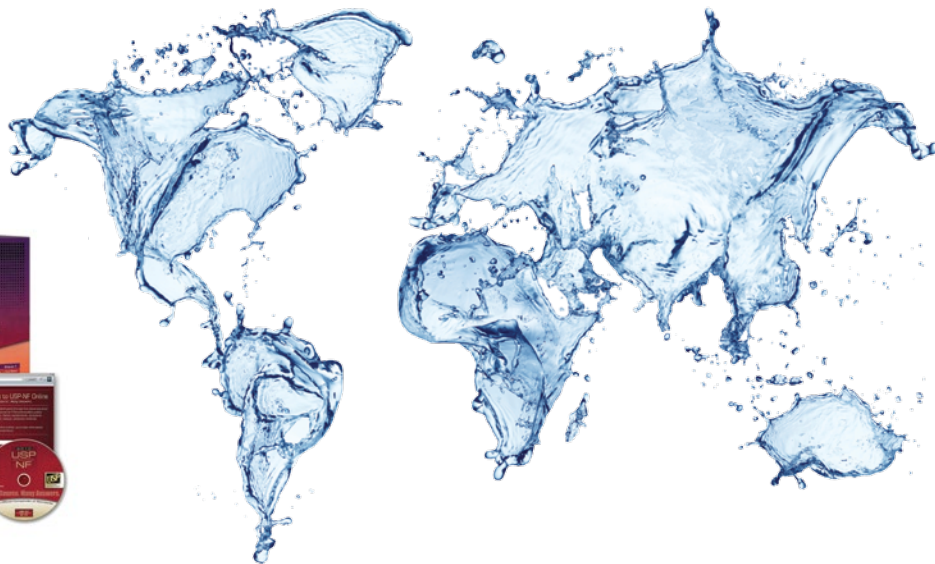


Temperature Compensation in Pharmaceutical Water Compliance



Temperature compensated or non-temperature compensated readings in pharmaceutical water compliance.

Test chapter <1644> was recently released by the United States Pharmacopeia (USP). This chapter provides technical guidance for pharmaceutical users in the theory, operation, calibration, and maintenance of conductivity measurement systems. One aspect of the chapter that requires consideration is the discussion regarding the use of temperature compensation for controlling pharmaceutical water systems.

USP <1644> recommends the use of temperature compensation for all measurement points, except for those required by USP <645>. USP <645> requires non-temperature compensated measurements for Water for Injection (WFI) and

Purified Water (PW), but only at the testing/reporting point. This is most often located on the return loop to the tank after the last point-of-use. The European Pharmacopeia (EP) has the same requirements as USP <645>, but permits temperature compensation at all measurement points after suitable validation.

Why should you make a temperature compensated conductivity measurement?

The answer is for process control. Conductivity measurement is affected by water temperature. Temperature compensation eliminates this effect on conductivity measurements and provides a fixed threshold for controls and alarms. 25 °C is recognized by the pharmaceutical industry worldwide as a standard reference temperature.

By compensating conductivity measurements of pure and ultrapure waters to this reference temperature, the whole water system will be under full process control. Thornton includes a temperature compensation and unique USP alarm setpoint features in all available transmitters as a convenience to our customers.

Thornton transmitters are flexible, with the potential to display temperature compensated conductivity, non-temperature compensated conductivity, and temperature readings all from the same conductivity loop. This means that the testing/reporting point

on the return loop can report both the non-temperature compensated conductivity reading and the temperature for the WFI and PW, while also controlling the system using the temperature compensated measurements. Thornton transmitters therefore allow you to comply with both USP <645> and USP <1644> with one system.

Contact your local METTLER TOLEDO Thornton representative to learn more about temperature compensation used in pharmaceutical waters.



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AN-0140 Rev A 08/13

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