



PRECISION INSTRUMENTATION MEASUREMENT

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PEACE OF MIND

Isn't it time your temperature measurements were **CONSTANTLY GOOD !!**

Ireland's Pharmaceutical and Medical Device manufacturers use Flukes 9210 TPW to verify the accuracy of temperature measurements.

THE PROBLEM!!

In the pharmaceutical and medical device industries, calibration and validation technicians are frequently using thermometers that are calibrated with an accuracy of 0.05°C or better.

These thermometers, similar to the fluke 1523, 1502, 1529, 1560 are typically used to verify the accuracy of a Manufacturing, Laboratory or Sterilization process. These are usually sent back to the manufacturer once a year for recalibration.

But when an AS FOUND calibration is out of manufacturer's specification, this can lead to all sorts of backward traceability issues and a real headache for the personnel involved.

What if a product or sterilization has been compromised in the meantime and when was the probe damaged?

How can you avoid these problems?

THE PROBLEM SOLVED!!

Many of Ireland's multinational pharmaceutical and medical device manufacturers use a Fluke TRIPLE POINT OF WATER System: Model: 9210 to Verify their high accuracy thermometer probes accuracy on a weekly or monthly basis.

Just place your accurate thermometer into the Fluke triple point of water system and see how far away from 0.01°C it is reading - This allows you to verify very easily if it has moved from its calibrated accuracy from the last time it was calibrated. If it has, it is likely to have been damaged somewhere in use and you can withdraw it for investigation.

Incredible but true - nature's Constant in YOUR lab!

The triple point of water is an extremely accurate temperature standard that can be realised easily and reliably.

APPLICATION NOTE

The FLUKE 9210 makes it even easier. Within 30 minutes you can achieve the triple point of water in YOUR lab.

The triple point of water is a constant of nature.

Pure water exists in a state of liquid, solid (ice), and vapor in equilibrium at only one pressure and temperature.

By definition of the INTERNATIONAL TEMPERATURE SCALE OF 1990 the temperature assigned to the triple point of water is exactly 0.01°C.

The TPW cell is a sealed glass container partially filled with extremely pure liquid water and the air removed. With the volume of liquid water less than the volume inside the container the remaining space fills with water vapor. Simply freezing a portion of the water inside the cell creates the condition where the three phases of water exist together and the temperature will equilibrate to very nearly 0.01°C (a resolution of 0.0002°C).

When you receive your thermometers back from calibration they will usually have a value assigned to Triple point of water.

Just use a control chart weekly or monthly to check if the probes or readouts have been damaged in the meantime. This will allow you to pull them out of service and can save you from all that backwards traceability that causes such a problem.

IT GETS BETTER! As the triple point 0.01°C is a constant of nature, it never needs to leave your lab. It requires no recalibration!!! It is what it is!! A **CONSTANT** of nature.

<http://www.hartscientific.com/products/9210.htm>

ORDERING INFORMATION

9210	Mini TPW Maintenance Apparatus
5901B	Mini TPW Cell

SPECIFICATIONS

Temperature Range	-10°C to 125°C
Ambient Operating Range	5°C to 45°C
Stability	± 0.02°C
Vertical Gradient	± 0.05°C over 100mm at 0°C
Plateau Duration	6-10 hours, typical
Resolution	0.01 ° (0.001 ° in program mode)
Display Scale	°C or °F, switchable
Immersion Depth	171mm (6.75 in) in optional comparison block
Stabilization Time	15 minutes nominal
Preheat Wells	3 wells (for 3.18, 6.35, or 7.01mm probes (0.125, 0.25, 0.276 in))
Fault Protection	Adjustable software cutout using control probe; separate circuit thermocouple cutout for maximum instrument temp
Display Accuracy	± 0.25°C
Comparison Block	Three multi-hole blocks, blanks, and custom blocks available
Well-to-Well Gradient (in comparison block)	± 0.02°C
Heating Time	Ambient to 100°C: 45 min.
Cooling Time	Ambient to -5°C: 25 min.
Comm.	RS-232 included
Power Requirements	115 V ac (± 10 %), 60 Hz, 1.5 A, or 230 V ac (± 10%), 50 Hz, 0.75 A, 170 W
Exterior Dimensions (HxWxD)	489x222x260 mm (19.25x8.75x10.25 in)
Weight	7kg (15.5lb) with block