

Thermostat vs. Thermometer Calibration: Understanding the Difference

While storing temperature sensitive materials such as vaccines, it's important to maintain strict temperatures. As a result, the CDC recommends using an NIST calibrated thermometer for each refrigerator or freezer that is used to store these sensitive materials. Although, a unit's thermostat is often confused with a thermometer, therefore creating a common misconception that the thermostat needs to be calibrated. Not understanding the difference between the two could potentially cost you time and money as well as cause you frustration. In our brief explanation below, you'll learn the difference between a thermostat and a thermometer in order to help you better comply with the CDC's calibration requirements.

A thermostat is a device, built into a refrigerator or freezer that is used to control the temperature within the unit. For example, if the temperature is preset to +4°C (39.2°F), but the unit temperature drops to +3.5°C (38.3°F), the thermostat prompts the refrigeration system to turn on until the temperature reaches +4°C (39.2°F) again and then turns off. The temperature can easily be adjusted through electronic controls or analog controls (mechanical dial). Electronically controlled thermostats have a digital temperature display on the outside of the unit for quick, easy viewing. They can also have an audible and/or visual alarm system to alert you if the unit temperature reaches temperatures outside of the high and low temperature parameters. A prime example of why this might happen would be if the door is not completely shut or if the unit is not working properly and needs service. In regards to calibration, a thermostat does not record/document sample temperature, therefore does not need to be calibrated. It simply controls the temperature within the unit.

Below are examples of thermostats:



Electronically Controlled Thermostat



Analog Thermostat

On the other hand, a thermometer is a device used to measure the temperature within a refrigerator or freezer. The thermometer's probe reads the current unit temperature and displays it either digitally or through a dial. For a more accurate temperature reading, the probe can sit in a bottle of glycol to simulate a sample or vaccine. Unlike a thermostat, a thermometer does not prompt the refrigeration system to turn on if the unit temperature reaches temperatures outside of the high and low temperature parameters. Instead, it simply measures the current unit temperature. Some thermometers feature an audible and/or visual alarm system that alerts you if the unit temperature is higher or lower than its preset. In regards to calibration, a thermometer is a device that is used to document sample temperature. Therefore, in order to give an accurate reading, the thermometer needs proper calibration, which is required by the CDC and VFC to be done annually.

Below are examples of thermometers:



Vaccine Storage Thermometer

General Purpose Thermometer

We have a wide selection of thermometers that meet NIST standards both for general use and vaccine storage and come with a Traceable® Certificate. For our complete thermometer offering, visit our web page at: [http://www.labrepco.com/store/categories/view/id/4802/title/Traceable Thermometers for Cold Storage](http://www.labrepco.com/store/categories/view/id/4802/title/Traceable%20Thermometers%20for%20Cold%20Storage).

For any other questions, please contact one of our refrigeration specialists at 1-800-521-0754, or send us an email at info@labrepco.com.