

Thermometers

A minimum/maximum (min/max) thermometer is the minimum requirement for temperature monitoring. The most common types used for refrigerators are dials and digital. The min/max thermometer must be reset regularly (i.e. at least daily) for meaningful temperature recording. Ensure you choose a thermometer that reads in Celsius. Different models of min/max thermometers may vary in accuracy. They also require annual checks to ensure accurate measurement, as flat batteries or a damaged probe or cable can affect readings. You can check the calibration of a min/max thermometer for accuracy by performing the following steps:

How to check the calibration of your thermometer

1. Fill a polystyrene or plastic cup with cold water. Place cup in the refrigerator freezer until a fine layer of ice forms on the top and small sections of ice form within the fluid (this may take up to 2½ hours). Using this method the mixture is 0°C if ice is present. Place the temperature probe into the middle of the container (be careful not to let the probe touch the container).

OR

Fill approximately 75% of a container (e.g. polystyrene cup) with very small ice chips/crushed ice and add enough very cold water to just cover the ice and stir very briefly to remove the air bubbles.

Wait for approximately 5 minutes for the temperature of the ice mixture to stabilise then place the temperature probe into the middle of the container (be careful not to let the probe touch the container).

2. Observe the display screen on the thermometer. The temperature should drop to 0°C within 60 – 90 seconds.

An 'acceptable' degree of accuracy of a thermometer can vary eg. to within $\pm 1^\circ\text{C}$. Even if your thermometer is considered 'accurate' this check could result in the display screen showing three possible readings: $+1^\circ\text{C}$, 0°C , -1°C . Record the results of the calibration on your temperature chart. This information becomes important, particularly, when checking the calibration of your thermometer and also if the vaccine fridge temperature goes outside the recommended range of $+2^\circ\text{C}$ to $+8^\circ\text{C}$. Check with the organisation who supplies your thermometer about the degree of accuracy.

The thermometer needs to be accurate to $\pm 1^\circ\text{C}$ or better. If your temperature reading is more than one degree above or below 0°C at two minutes replace the battery and test again. If still not within range replace the thermometer.

A calibration check on your thermometer is recommended after the battery is changed and every 12 months for auditing purposes, or if you are having cold chain problems.

You may need a hammer or other appropriate implement and a sturdy plastic bag or tea towel to crush the ice blocks.