Associated Calibration & Training Ltd

Humidity Meter Guide

Humidity meters, hygrometers and therma-hygrometers - a guide. In many manufacturing processes the measurement of relative humidity (%rh) is important, as many products are sensitive to variations in humidity. Therefore humidity needs to be measured and controlled for the end products to be consistent in both quality and performance.

What is a hygrometer?

A hygrometer is an instrument used to measure the quantity of water vapour present in air. Hygrometers can measure relative humidity over the range of 0 to 100 %rh but in most instruments, this range may be more limited depending on the sensor type. Relative humidity is expressed as the ratio of the amount of water vapour present in the air or gas, to the quantity which would reach saturation, saturation being 100%.

Applications

There are a wide range of applications for %rh measurement in the following industries:

- pharmeceutical
- paper mills
- food processing
- computer rooms
- electronic component production
- livestock

The pharmaceutical industry is one of the largest users of humidity instrumentation as products can be sensitive to variations in humidity levels. Food manufacturing processes rely on humidity control, as food preservation techniques are often focused on limiting the activity of water. The humidity is an essential element of climate control in buildings for optimum comfort and energy conservation. Paper and paper based products are highly sensitive to humidity and moisture levels. During production, storage and distribution, the monitoring of humidity can have significant benefits on quality.

Monitor humidity levels for better health

If a building is too damp and the humidity level is too high at above 70%rh, not only does mould develop but it can encourage dust mites to breed in carpets and mattresses. Conversely, if the humidity level is too low at below 25%rh, it can cause respiratory discomfort. The regular monitoring of humidity levels in buildings can improve health.

Dew point

The dew point is defined as the lower temperature to which air must be cooled in order for condensation (saturation) to occur. The dew point is dependent on the concentration of water vapour (%rh) present.