

pH / Temperature Probe for Food

When measuring pH, food products can pose a number of challenges. Samples can vary in consistency from solid, semi-solid, to a slurry with a high content of solids. These sample types can coat the sensitive glass membrane surface and/or clog the reference junction. Designed specifically for measuring pH in food, the FC2023 has a conic tip shape for easy penetration, an open junction to resist clogging, and a PVDF food grade plastic body that can be cleaned with sodium hypochlorite. The FC2023 is an ideal general purpose pH electrode for use in food manufacturing.

PVDF Body

Polyvinylidene fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet and nuclear radiation. PVDF is also resistant to fungal growth.

Low Temperature Glass

The FC2023 electrode uses Low Temperature (LT) glass for the sensing bulb. The LT glass tip is a lower resistance glass formulation. As the temperature of the sensing glass decreases, the resistance of the LT glass will increase approaching that of standard glass at ambient temperatures. The FC2023 is suitable to use with samples that measure from 0 to 50°C.

Open Junction Reference

Clogging of the reference junction is a common challenge faced by food producers that measure pH in slurries and semi-solid products. The solids can easily clog the ceramic junction used with standard laboratory pH electrodes. The open junction design of the FC2023 resists clogging and continues to provide accurate, stable readings.

Viscolene Electrolyte

The viscolene electrolyte offers a hard gel interface between the inner electrode components and the sample being measured. The electrolyte is silver-free for use in food products and is maintenance-free.

Conic Tip Shape

This design allows for penetration into semisolids and emulsions for the direct measurement of pH in a variety of food products including sauces, dough, and other semi-solids.

Built-in Temperature Sensor

A thermistor temperature sensor is in the tip of the indicating pH electrode. A temperature sensor should be as close as possible to the indicating pH bulb in order to compensate for variations in temperature.



Application Importance

One of the most common measurements of food products is pH because of how it affects food characteristics such as shelf stability, texture, and flavor. Foods are generally broken into two groups based on their pH value. These groups include acid foods which have a naturally low pH of 4.6 or below and low-acid foods that have a finished equilibrium pH value greater than pH 4.6 and a water activity greater than 0.85. The low-acid foods can be pH adjusted with the addition of an acid to lower the final pH and become an acidified food.

In food processing, some products require the measurement of pH to meet industry regulations to ensure the quality and safety of goods. A lower pH will help in preventing unwanted bacteria from growing thus extending the shelf life of a product. While food safety is a crucial consideration, understanding the pH of a food product can also help to achieve consistent flavors and textures. Through fermentation and other biological processes, many foodstuffs only achieve their desired qualities at particular pH values or ranges. pH is an essential parameter that requires close observation throughout food production to provide the best possible product.

Specifications	FC2023
Description	pre-amplified pH/temperature probe
Reference	single, Ag/AgCl
Junction	open
Electrolyte	viscolene
Max Pressure	0.1 bar
Range	pH: 0 to 12
Recommended Operating Temperature	0 to 50°C (32 to 122°F)
pH Glass Type	LT (low temperature)
Tip /Shape	conic (dia: 6 x 10 mm)
Temperature Sensor	yes
Amplifier	yes
Body Material	PVDF
Cable	5 wires; 1 m (3.3')
Connection	quick connect DIN