Temperature Probe

Instruction Sheet

The stainless steel Temperature Probe is a rugged, general-purpose laboratory temperature sensor. It is used as a thermometer for experiments with the CPO DataCollector for easy, instant and accurate readings.

General Instructions

1. Connect the Temperature Probe to the CPO DataCollector.
2. Turn on the CPO DataCollector.
3. The CPO Data Collector will identify the Temperature Probe sensor and load a default data-collection setup appropriate to the recognized sensor.
4. You are now ready to collect data.

Note: There is no need to calibrate the probe. It is calibrated extremely well at the factory.

Specifications

- Temperature range: -40 to 135°C (-40 to 275°F)
- Maximum temperature: 150°C
- Temperature sensor: 20k NTC Thermistor
- Accuracy: ±0.2°C at 0°C; ±0.5°C at 100°C
- Response time: 10 seconds in water (with stirring)
  400 seconds in still air; 90 seconds in moving air

Usage Guidelines

The Temperature Probe is made of 316 grade stainless steel. This high-grade stainless steel provides a high level of corrosion resistance for classroom use. Here are some general guidelines for use:

1. The probe handle is made of a molded plastic. Although it is chemical resistant, avoid submerging the probe beyond the stainless steel portion.

2. Always wash the probe after use.

3. The probe can be left continuously in water, as long as the temperature is within range (-40 to 135° C). Extended use in saltwater may cause discoloration to the probe, but will not affect performance.

4. The probe can be left continuously in most organic compounds (i.e. methanol, ethanol, 1-propanol, 2-propanol, 1-butanol, n-hexane, lauric acid, paradichlorobenzene, phenyl salicylate, benzoic acid).

5. Do not leave the probe in n-pentane for more than 1 hour.

6. The probe can be left in strong basic solutions, such as NaOH, for up to 48 hours with only minor discoloration. We do not recommend usage in basic solutions that are greater than 3 M in concentration.

7. The chart at right provides the maximum length of time for probe exposure to some common acids. If the probe is left in acid longer than these times, the probe may bubble and/or discolor, but should still function. Do not soak probes in any acid for longer than 48 hours.

Maximum Acid Exposure	
1 M HCl	20 min
2 M HCl	10 min
3 M HCl	5 min
1 M H_2SO_4	48 hours
2 M H_2SO_4	20 min
3 M H_2SO_4	10 min
1 M HNO_3	48 hours
2 M HNO_3	48 hours
3 M HNO_3	48 hours
1 M CH_3COOH	48 hours
2 M CH_3COOH	48 hours
3 M CH_3COOH	48 hours
1 M H_3PO_4	48 hours
2 M H_3PO_4	48 hours
3 M H_3PO_4	48 hours