## HI96713 • HI96717

## Phosphate Portable Photometers

- CAL Check™
  - Enables users to check validity of calibration
- REDS
- Alerts the user of low battery power that could adversely affect reading
- GLP Features
  - · Meets Good Laboratory Practices

Phosphates are present in a number of products that are used by humans everyday. Some examples of the effects of phosphates are enhancing the flavor and tartness of cola drinks, as a buffering agent in controlling pH in antifreeze and delaying darkening of cut potatoes used in making french fries.

Phosphates are also extensively used in detergents and cleaning fluids because of their ability to soften water and remove soil deposits.

The largest use of phosphates is in the conversion of the mineral apatite, which is a mixture of calcium phosphate and other calcium compounds that are used in fertilizers.

Phosphates are particularly important for the growth and development of plant roots, and hence are one of the most common fertilizers used in agriculture.

However, high concentrations of phosphates in agricultural runoff can cause environmental pollution, as they are a primary cause of eutrophication. Local laws govern the use of phosphates and the discharge levels into streams.

Phosphates are also utilized in detergents and are needed in small quantities for heating systems.

For these reasons, it is necessary to closely monitor the phosphate levels present in both municipal and industrial wastewater.

The HI96713 measures phosphate ( $PO_4^{3-}$ ) content in water, wastewater and sea water in the 0.00 to 2.50 mg/L (ppm) range.

The HI96717 measures percent phosphate (P0 $\frac{3}{4}$ ) content in water samples in the 0.0 to 30.0 mg/L (ppm) range.



Range 0.00 to 2.50 mg/L (ppm) 0.0 to 30.0 mg/L (ppm)  Resolution 0.01 mg/L 0.1 mg/L  Accuracy @ 25°C (77°F) ±0.04 mg/L ±4% of reading ±1.0 mg/L ±4% of reading  Light Source tungsten lamp  Light Detector silicon photocell with narrow band interference filter @ 610 nm silicon photocell with narrow band interference filter @ 525 nm  Power Supply 9V battery  Auto-off after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder  Environment 0 to 50°C (32 to 122°F): RH max 95% non-condensing  Dimensions 193 x 104 x 69 mm (7.6 x 4.1 x 2.7")  Weight 360 g (12.7 oz.)  Method adaptation of the ascorbic acid method Wastewater  H196713 and H196717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately  H196713 and H196717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents and Standards  H196713 CAL Check™ standard cuvettes  H196713-01 reagents for 100 tests  H196717-11 CAL Check™ standard cuvettes  H193717-01 reagents for 300 tests	Specifications	HI96713 Phosphate LR		HI96717 Phosphate HR	
Accuracy @ 25°C (77°F) ±0.04 mg/L ±4% of reading ±1.0 mg/L ±4% of reading  Light Source tungsten lamp  Silicon photocell with narrow band interference filter @ 610 nm silicon photocell with narrow band interference filter @ 525 nm  Power Supply 9V battery  Auto-off after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder  Environment 0 to 50°C (32 to 122°F); RH max 95% non-condensing  Dimensions 193 x 104 x 69 mm (7.6 x 4.1 x 2.7")  Weight 360 g (12.7 oz.)  Method adaptation of the ascorbic acid method Wastewater  Hi96713 and Hi96717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately  Hi96713C and Hi96717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents and Hi96713-11 CAL Check™ standard cuvettes  Hi96713-11 CAL Check™ standard cuvettes  Hi96717-11 CAL Check™ standard cuvettes	Range	0.00 to 2.50 mg/L (ppm)		0.0 to 30.0 mg/L (ppm)	
Light Source Light Detector Silicon photocell with narrow band interference filter @ 610 nm silicon photocell with narrow band interference filter @ 525 nm  Power Supply 9V battery  Auto-off after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder  Environment 0 to 50°C (32 to 122°F); RH max 95% non-condensing  Dimensions 193 x 104 x 69 mm (7.6 x 4.1 x 2.7")  Weight 360 g (12.7 oz.)  Method  Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater  HI96713 and HI96717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately HI96713C and HI96717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents and Standards HI96713-11 CAL Check™ standard cuvettes HI93713-03 reagents for 100 tests HI93717-01 reagents for 100 tests	Resolution	0.01 mg/L		0.1 mg/L	
Light Detector    Silicon photocell with narrow band interference filter @ 610 nm   Silicon photocell with narrow band interference filter @ 525 nm	Accuracy @ 25°C (77°F)	±0.04 mg/L ±4% of reading		±1.0 mg/L ±4% of reading	
Power Supply  Auto-off  Auto-off  Auto-off  Auto-off  Dimensions  193 x 104 x 69 mm (7.5 x 4.1 x 2.7")  Weight  Adaptation of the ascorbic acid method  Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater  HI96713 and HI96717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately  HI96713C and HI96717 (1) capen to sold separately  HI96713C and HI96717 (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents and Standards  HI96713 CAL Check™ standards cuvettes  HI96713 CAL Check™ standard cuvettes  HI96713 Teagents for 100 tests  HI967171 CAL Check™ standard cuvettes  HI9671710 reagents for 100 tests	Light Source	tungsten lamp			
Auto-off  after ten minutes of non-use in measurement mode; after one hour of non-use in calibration mode; with last reading reminder  Environment  0 to 50°C (32 to 122°F); RH max 95% non-condensing  Dimensions  193 x 104 x 69 mm (7.6 x 4.1 x 2.7")  Weight  360 g (12.7 oz.)  Method  Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater  H196713 and H196717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately  H196713C and H196717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents and H196713-11  Reagents old separately  H196713-11  CAL Check™ standard cuvettes  H193713-03  reagents for 100 tests  H196717-11  CAL Check™ standard cuvettes  H196717-01  reagents for 100 tests	Light Detector				
Auto-off  of non-use in calibration mode; with last reading reminder  Environment  0 to 50°C (32 to 122°F); RH max 95% non-condensing  Dimensions  193 x 104 x 69 mm (7.6 x 4.1 x 2.7")  Weight  360 g (12.7 oz.)  Method  adaptation of the ascorbic acid method  Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater  HI96713 and HI96717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.  CAL Check™ standards and testing reagents sold separately  HI96713C and HI96717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.  Reagents sold separately  HI96713-11  CAL Check™ standard cuvettes  HI96713-03  reagents for 100 tests  HI96717-11  CAL Check™ standard cuvettes  HI96717-11  CAL Check™ standard cuvettes  HI96717-11  CAL Check™ standard cuvettes	Power Supply	9V battery			
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Weight       360 g (12.7 oz.)         Method       adaptation of the ascorbic acid method       Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater         Ordering Information         HI96713 and HI96717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.         CAL Check™ standards and testing reagents sold separately         HI96713C and HI96717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, ocissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.         Reagents sold separately         HI96713-11       CAL Check™ standard cuvettes         HI93713-01       reagents for 100 tests         HI96717-11       CAL Check™ standard cuvettes         HI96717-11       CAL Check™ standard cuvettes         HI96717-11       CAL Check™ standard cuvettes	Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing			
Amino Acid Method, adapted from Standard Method for the Examination of Water and Wastewater    High 213 and High 217 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.   CAL Check™ standards and testing reagents sold separately High 213 cand High 217 C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.   Reagents sold separately High 213-11 CAL Check™ standard cuvettes	Dimensions	193 x 104 x 69 mm (7.6 x 4.1 x 2.7")			
Method       adaptation of the ascorbic acid method       Method for the Examination of Water and Wastewater         Ordering Information       Hig6713 and Hig6717 are supplied with sample cuvettes (2) with caps, 9V battery, instrument quality certificate and instruction manual.         CAL Check*Machandras and testing reagents sold separately         Hig6713C and Hig6717C include photometer, CAL Check™ standards, sample cuvettes (2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.         Reagents sold separately       Hig6713-11       CAL Check™ standard cuvettes         Hig6713-11       CAL Check™ standard cuvettes         Hig6713-03       reagents for 300 tests         Hig6717-11       CAL Check™ standard cuvettes         Hig6717-11       CAL Check™ standard cuvettes         Hig6717-11       CAL Check™ standard cuvettes	Weight	360 g (12.7 oz.)			
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Hi96713		(2) with caps, 9V battery, scissors, cuvette wiping cloth, instrument quality certificate, instruction manual and rigid carrying case.			
Reagents and Standards HI93713-03 reagents for 300 tests HI96717-11 CAL Check™ standard cuvettes HI96717 HI93717-01 reagents for 100 tests		HI96713	HI96713-11	CAL Check™ standard cuvettes	
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1.00.00		HI96717	HI96717-11	CAL Check™ standard cuvettes	
HI93717-03 reagents for 300 tests			HI93717-01	reagents for 100 tests	
			HI93717-03	reagents for 300 tests	

Standard reagents begin on page 10.70; CAL Check  $^{\intercal\!M}$  standard reagents begin on page 10.71



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