

HI97106

Chemical Oxygen Demand Portable Photometer

Low, Medium, High, Ultra High Range

The HI97106 is a waterproof portable photometer with an advanced optical system that uses a Light Emitting Diode and a narrow band interference filter for accurate, repeatable readings. The optical system is sealed from outside dust, dirt, and water.

The meter uses an exclusive positive-locking system to ensure that the vials are placed into the holder in the same position every time.

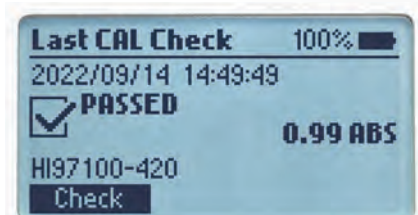
With the CAL Check™ functionality, users are able to validate instrument performance at any time. Hanna Instruments® CAL Check cuvettes are certified against NIST-traceable reference instrument(s).

The built-in tutorial mode guides users step-by-step through the measurement process. The tutorial mode includes all steps required for sample preparation, the required reagents, and quantities.

The instrument is a compact and versatile photometer designed to accurately determine chemical oxygen demand.

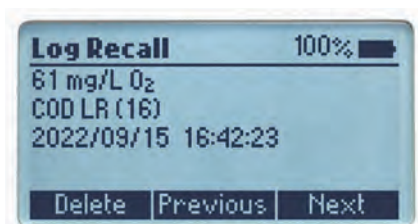
Suitable for field or bench measurements, the photometer features:

- Sophisticated optical system
- Waterproof IP67, floating case
- Backlit LCD
 - The 128 x 64 Pixel LCD allows for a simplified user interface.
- Meter validation using certified CAL Check cuvettes
- Tutorial mode guides the user step-by-step
- Includes auto-data logging features to easily record water testing results
- Battery status indicator and auto-shut off
 - The auto-off feature automatically shuts off the meter after 15 minutes of inactivity in order to conserve battery life.
- Compact size
 - Measures 142.5 mm (5.6") x 102.5 mm (4") and only 50.5 mm (2") thick.



CAL Check™ validation

Validate instrument performance at any time using CAL Check cuvettes made with NIST traceable standards.



Auto-data logging

Data autolog helps users keep track of all measurements. Data is automatically saved every time a measurement is made.

The data log can hold 200 individual measurements. When the data log is full, the meter will rewrite the oldest data point.



On-Screen guides

Step-by-step on-screen guidance.



Waterproof and floating, IP67 meter design

Method and Parameter

Chosen parameter and method used is displayed along with the reading.

Battery status indicator and auto-shut off

The auto-off feature automatically shuts off the meter after 15 minutes of inactivity in order conserve battery life.

Virtual keys

Menu available at the touch of a button

Removable vial adapter

The vial adapter can be removed to accommodate HI97106-11 CAL Check™ cuvettes for validation.

Dedicated help

A dedicated help key provides information relating to the current meter operation, and can be used at any stage in the setup or measurement process to show contextual help.



Specifications		HI97106	
Chemical Oxygen Demand LR	Range	0 to 150 mg/L (as O ₂)	
	Resolution	1 mg/L	
	Accuracy	±5 mg/L or ±4 % of reading at 25 °C, whichever is greater	
	Method	Adaptation of the US EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	
	LED	420 nm	
Chemical Oxygen Demand MR	Range	0 to 1500 mg/L (as O ₂)	
	Resolution	1 mg/L	
	Accuracy	±15 mg/L or ±4 % of reading at 25 °C, whichever is greater	
	Method	Adaptation of the US EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	
	LED	610 nm	
Chemical Oxygen Demand HR	Range	0 to 15000 mg/L (as O ₂)	
	Resolution	1 mg/L	
	Accuracy	±150 mg/L or ±2 % of reading at 25 °C, whichever is greater	
	Method	Adaptation of the US EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	
	LED	610 nm	
Chemical Oxygen Demand UHR	Range	0 to 60.0 g/L (as O ₂)	
	Resolution	0.1 g/L	
	Accuracy	±0.5 g/L ±3 % of reading at 25 °C	
	Method	Adaptation of the US EPA 410.4 Approved Method for the COD Determination on Surface Waters and Wastewaters	
	LED	610 nm	
Measurement System	Light Source	LED	
	Bandpass Filter	wavelength	420 nm & 610 nm
		bandwidth	8 nm
		wavelength accuracy	±1.0 nm
Photometer Specifications	Light Detector	silicon photocell	
	Cuvette Type	round, 16 mm diameter	
	Auto Logging	200 readings	
	Display	128 x 64 pixel B/W LCD with backlight	
	Auto-off	After 15 minutes of inactivity (after 30 minutes of inactivity if a Zero has been done but not a Read)	
	Battery Type / Life	1.5 V AA alkaline (3 pcs.) / > 10000 measurements (without backlight)	
	Environment	0 to 50 °C (32 to 122 °F); 0 to 100 % RH, non-serviceable	
	Dimensions	142.5 x 102.5 x 50.5 mm (5.6 x 4.0 x 2.0")	
	Weight	380 g (13.4 oz.); with batteries	
	Casing	IP67 rating, floating	
Ordering Information		HI97106 is supplied with adapter for 16 mm vial, 1.5V AA Alkaline batteries (3 pcs.), instrument quality certificate, and quick reference guide with instructions for manual download.	
Reagents, Standards, and Accessories	HI97106-11 CAL Check™ standards for HI97106		HI93754E-25 Reagents Hg Free Medium Range for 25 tests
	HI93754A-25 Reagents EPA Low Range for 25 tests		HI93754F-25 Reagents ISO Low Range for 25 tests
	HI93754B-25 Reagents EPA Medium Range for 25 tests		HI93754G-25 Reagents ISO Medium Range for 25 tests
	HI93754C-25 Reagents High Range for 25 tests		HI93754J-25 Reagents Ultra High Range for 25 tests
	HI93754D-25 Reagents Hg Free Low Range for 25 tests		

HI93754

COD Certified Standards and Reagents

Each box of 25 vials is supplied with a Hanna certificate of quality. The reagents are traceable to NIST SRM® 930.

- **Compact packaging**
 - Each set of COD vials is stored in fully recyclable, sustainable, compact plastic packaging rather than standard styrofoam. The ergonomic box design reduces the volume of collateral waste and required storage space.
- **Three measurement ranges to satisfy every need**
 - COD levels vary depending on the application and process measuring points. Hanna offers reagents to cover three separate ranges:
 - low range: 0 to 150 mg/L O₂
 - medium range: 0 to 1500 mg/L O₂
 - high range: 0 to 15000 mg/L O₂
- **Accurate and repeatable measurements**
 - Hanna COD reagents have been developed in accordance with Standard Methods 5220D, US EPA 410.4 and ISO 15705:2002 methods.
- **Pre-dosed vials**
 - Hanna vials contain approximately 3 mL of pre-dosed reagent. The operator just needs to add a small quantity of the sample.
- **Safe reagents**
 - Hanna COD reagents are safe for operators and the environment. Vials and caps have been designed to avoid accidental reagent spills. Due to the pre-dosed reagents, the amount of chemicals and handling time is minimized.
- **Quick and accurate measurements**
 - With pre-dosed vials, test preparation time is dramatically reduced. There is no time-consuming reagent preparation procedure or glassware cleaning.



HI93754C-25



COD Test	Range	Method	Reagent Code
COD LR - 150°C, 2 hours	0 to 150 mg/L (as O ₂)	dichromate EPA*	HI93754A-25 (25 tests)
	0 to 150 mg/L	dichromate mercury-free**	HI93754D-25 (25 tests)
	0 to 150 mg/L	dichromate ISO***	HI93754F-25 (25 tests)
COD MR - 150°C, 2 hours	0 to 1500 mg/L (as O ₂)	dichromate EPA*	HI93754B-25 (25 tests)
	0 to 1500 mg/L	dichromate mercury-free**	HI93754E-25 (25 tests)
	0 to 1500 mg/L	dichromate ISO***	HI93754G-25 (25 tests)
COD HR - 150°C, 2 hours	0 to 15000 mg/L (as O ₂)	dichromate	HI93754C-25 (25 tests)
COD UHR - 150°C, 2 hours	0.0 to 60.0 g/L	dichromate	HI93754J-25 (25 tests)

COD Rapid Method: It is now possible to get results for process control monitoring in a fraction of the time using any of the Hanna COD reagents. The Rapid Method digestion time is reduced from 2 hours to 15 minutes when the digestion temperature is increased from 150°C to 170°C.

COD Test	Range	Rapid Method	Reagent Code
COD LR / Rapid Method - 170°C, 15 minutes	0 to 150 mg/L (as O ₂)	adaptation of dichromate EPA	HI93754A-25 (25 tests)
	0 to 1500 mg/L	adaptation of dichromate mercury-free	HI93754D-25 (25 tests)
	0 to 1500 mg/L	adaptation of dichromate ISO	HI93754F-25 (25 tests)
COD MR / Rapid Method - 170°C, 15 minutes	0 to 150 mg/L (as O ₂)	adaptation of dichromate EPA	HI93754B-25 (25 tests)
	0 to 1500 mg/L	adaptation of dichromate mercury-free	HI93754E-25 (25 tests)
	0 to 1500 mg/L	adaptation of dichromate ISO	HI93754G-25 (25 tests)

Wastewater Standards

HI93754-11 500 ppm COD standard, 500 mL bottle

HI93754-12 14000 ppm COD standard, 500 mL bottle

HI93717-11 phosphate standard 1000 ppm, 500 mL bottle

Notes:

* Method with chromium-sulfuric acid is officially recognized by EPA for wastewater analysis.

** This method is recommended for general purpose analysis with no chloride interference.

*** Method follows the official method ISO 15705. COD MR ISO method is 0-1000 mg/L. Meter can read higher.

HI839150

COD Reactor

with 25 Vial Capacity

The HI839150 is a robust 25 vial capacity thermo-reactor for COD determination of industrial wastewater. The reactor has two stored digestion temperature programs that support analysis methods at:

- 150 °C (COD methods, Iron Total, Phosphorus Acid Hydrolyzable, Phosphorus Total methods)
- 105 °C (Chromium (VI) and Total, Nitrogen Total methods)
- **Laboratory safety shield included**
 - The included safety shield is highly recommended to use during vial digestion procedure to maintain a safe working environment
- **Reactor block temperature continuously evaluated and displayed**
- **Built-in countdown timer**
 - A timer of up to 180 minutes is included for applications that require timed digestions. The end of the digestion time is signaled by 5 short acoustic beeps and "DONE" message is displayed. The heating is turned off and the block begins to cool off.
- **Status indicator lights**
 - POWER (on)
 - HOT (surface)
 - HEATING (in progress)
- **Overheating prevention**
- **Reference temperature probe well**
 - A small temperature well can accommodate a temperature probe, useful for verifying the heating block.
- **Warnings and error messages**
 - The instrument displays warning messages when erroneous conditions appear and when values are outside the expected range such as high or low temperature, hot surface, or heating system malfunction.



Outer casing stays cool to the touch!



HI740217
Lab Safety Shield



HI740216
Test Tube Cooling Rack

Use of HI740217 safety shield (included) and HI740216 cooling rack (not included) is strongly recommended.



Specifications	HI839150
Temperature Range	20.0 to 160.0 °C (68 to 320 °F)
Set Temperature Programs	105 °C and 150 °C
Accuracy	±2 °C
Temperature Stability	±0.5 °C
Capacity	25 vials; Ø 16 mm x 100 mm (Ø 0.63" x 3.94") Reference temperature probe well
Warm-up Time	about 10 minutes, depending on selected temperature
Digestion Time	1 to 180 minutes
Environment	5 to 50 °C (41 to 122 °F)
Power Supply (fuse protected)	115 Vac (HI839150-01) 230 Vac (HI839150-02)
Dimensions	190 x 300 x 95 mm (7.5 x 11.8 x 3.7")
Weight	approximately 4.8 kg (10.6 lb.)

Ordering Information

HI839150-01 (115 Vac, USA plug) and **HI839150-02** (230 Vac, European plug) is supplied with HI740217 laboratory safety shield; power cable, quick reference guide with instructions for manual download, and instrument quality certificate.