

COD

Chemical Oxygen Demand

A N A L Y Z E R



Municipal Wastewater



Industrial Wastewater



Environmental Testing

Measurement Procedure

The entire COD measurement process has been designed for ease of use by personnel at any skill level. In addition, all Hanna equipment has been designed for maximum safety during handling and testing with a minimum amount of waste. Even a novice can safely run accurate COD tests in just 3 simple steps:

1



Fill the pre-dosed vial with the sample

2



Place the vial in the reactor and set the timer

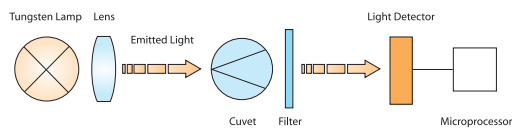
3



Place the vial in the Hanna C 99 and read the results

Advanced Optical Technology

An advanced optical system, based on special tungsten lamps and narrow band filters, allows accurate and repeatable readings. Four wavelengths are available to provide a complete Water Quality Test from Aluminum to Zinc.



C 99: The Hanna COD System

Hanna's new COD analyzer is a powerful multiparameter ion specific meter ideal for wastewater treatment. The C 99 benefits from Hanna's years of experience in water analysis and is specifically designed to be easy to operate and provide accurate, consistent results every time.

Compliant with Standard Methods

COD measurement is based on the well-established Closed Reflux Colorimetric Method over 3 different ranges: 0 to 150 mg/L, 0 to 1500 mg/L, and 0 to 15000 mg/L. This method is based on the requirements of the two main official sources for chemical analysis in Water and Wastewater: "Standard Methods for the Examination of Water and Wastewater" (20th Ed.) method #5220D and "EPA Methods and Guidance for Analysis of Water" (version 2.0) EPA method #410.4.

Complete Package

All components have been designed for an accurate, easy, and safe measurement of COD: C99 COD analyzer, HI 93754 series of pre-dosed reagents, C 9800 test tube heater, HI 740216 test tube cooling rack and HI 740217 safety shield. Each item can be ordered separately and used with compatible instrumentation using the same Standard Method.



C 9800

HI 93754

HI 740216



C 99



C 99

Easy Set-up

C 99 is an ion specific analyzer programmed to test up to 39 parameters including COD.

With the C 99, there is no need for complicated programming or installation of delicate filters.

With the touch of a button, select the parameter you want to test and your photometer is ready for measurement.

Environmental Security

Our pre-dosed reagents minimize the amount of necessary chemicals to properly test COD levels.

As a result, the subsequent waste of used, reacted cuvetts is also reduced to a minimum. Hanna Instruments offers a recycling program to help with the safe and proper disposal of your reacted sample materials. Please contact Hanna Instruments at (888) 426-6222 to get more information about our Reacted Samples Recycling Program.

Pre-dosed Reagents

Reagent kits containing 25 cuvetts of pre-dosed reagents are available in low, medium, and high ranges. Choose according to the range most suitable for your process. As the reagent is pre-dosed inside the standard 16 mm diameter cuvet, the user simply chooses the proper range and adds the water sample to the cuvet, significantly reducing the possibility of chemical contact.



Practical and Accurate Test Tube Reactor

Hanna's C 9800 test tube reactor accepts up to 25 standard 16 mm diameter cuvetts for each reaction cycle. With the C 9800, the user can speed up the analysis process of large quantities of samples without sacrificing accuracy. An accurate temperature control system ensures the digestion develops exactly at $150^{\circ}\text{C} \pm 2^{\circ}\text{C}$ as required by the Standard Methods.



Three Certified Reagent Kits

COD levels vary depending on the application and the different measuring points throughout the process. Three ranges are available to meet all COD requirements.

Each kit contains pre-dosed cuvettes sufficient for 25 tests, Certificate of Analysis, and instruction manual.



How to Order

C 99 is supplied complete with 3 standard measurement cuvettes, BOD bottle, COD adapter, transport cap, 2 x 9V batteries, and 12VDC adapter.

C 9800-01	Hanna Reactor (115 VAC)
C 9800-02	Hanna Reactor (230 VAC)
HI 740216	Test tube cooling rack
HI 740217	Safety shield
HI 92000	Windows® compatible software
HI 920010/9	9 to 9-pin connection cable
HI 93754A-25	COD reagents kit (LR)
HI 93754B-25	COD reagents kit (MR)
HI 93754C-25	COD reagents kit (HR)

COD Specifications for the C 99

Range	0 - 150 mg/L O ₂ (Low Range); 0 - 1500 mg/L O ₂ (Medium Range); 0 - 15000 mg/L O ₂ (High Range)
Resolution	1 mg/L O ₂ (LR); 1 mg/L O ₂ (MR); 10 mg/L O ₂ (HR)
Precision (std dev.)	±4 mg/L (at 150 mg/L O ₂); ±22 mg/L (at 1000 mg/L O ₂); ±220 mg/L (at 10000 mg/L O ₂)
Typical EMC Deviation	±1 mg/L O ₂ (LR); ±1 mg/L O ₂ (MR); ±10 mg/L O ₂ (HR)
Light Source	Tungsten lamp with narrow band interference filters at 420 nm and 610 nm
Method	Closed Reflux Colorimetric Method
PC Interface	RS232
Power Supply	12VDC power adapter or two 9V batteries
Dimensions	9.0 x 6.5 x 2.8" (230 x 165 x 70 mm)
Weight	22.6 oz. (640 g)

Additional Parameters for the C 99

Aluminum	Iodine
Ammonia LR	Iron LR
Ammonia MR	Iron HR
Bromine	Manganese LR
Chlorine dioxide	Manganese HR
Chlorine, free	Molybdenum
Chlorine, total	Nickel
Chromium VI HR	Nitrate
Chromium VI LR	Nitrite LR
Color	Nitrite HR
Copper LR	Oxygen, dissolved
Copper HR	pH
Cyanide	Phosphate LR
Cyanuric acid	Phosphate HR
Fluoride	Phosphorus
Hardness Ca	Silica
Hardness Mg	Silver
Hydrazine	Zinc

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HANNA
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Water Analysis & Control Division

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