

## The CHEMetrics COD System



### All Materials for COD Lab Setup are available from CHEMetrics

- ✓ COD Reagent Vials Kit (USEPA-accepted and Mercury-free)
- ✓ Photometer (single or multi-analyte)
- ✓ Calibration Standards (1000 and 10,000 ppm)
- ✓ COD Vial Rack (holds 40 vials)



### Methods

The determination of Chemical Oxygen Demand (COD) is widely used in municipal and industrial laboratories to measure the overall level of organic contamination in wastewater. The contamination level is determined by measuring the equivalent amount of oxygen required to oxidize organic matter in the sample.

**References:** USEPA Methods of Analysis of Water and Wastes, Method 410.4 (1983). APHA Standard Methods, 23<sup>rd</sup> ed., Method 5220 D-1997. A.M. Jirka and M. J. Carter, "Micro Semi-Automated Analysis of Surface and Wastewaters for Chemical Oxygen Demand," *Analytical Chemistry*, Vol. 47, p. 1397 (1975). J. A. Winter, "Method Research Study 3, Demand Analysis, An Evaluation of Analytical Methods for Water and Wastewater," USEPA, 1971. ASTM D 1252-00, Chemical Oxygen Demand (Dichromate Oxygen Demand) of Water, Test Method B.

USEPA-accepted

### The Dichromate Reactor Digestion Method

CHEMetrics offers two methods (USEPA-accepted and Mercury-free) for the determination of low-, mid-, and high-range COD levels in wastewater. The products using the USEPA-accepted method contain mercuric sulfate in the reagent to eliminate chloride interferences. The Mercury-free product line is applicable when chloride interference is not a concern and USEPA reporting is not required.

CHEMetrics' leakproof reagent vials contain pre-measured solutions of sulfuric acid and potassium dichromate. To perform the COD determination, the analyst simply removes the Teflon-lined screw cap from the vial, adds sample to the vial, and replaces the cap. The vial is then heated for two hours at 150°C in a standard digester block.

Results are obtained using any photometer or spectrophotometer that accepts a 16 mm cell including Hach instruments with factory-programmed calibrations<sup>1</sup>. A generic calibration equation is included for use with other spectrophotometers.

## Instrumental Kits

### Multi-Analyte Photometer V-2000

(See page 14 for instrumental features)

#### Range: 0-150 ppm (LR) Method: Dichromate Reactor Digestion

COD (USEPA-accepted) Vials Kit	Cat# *K-7350S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (USEPA-accepted) Vials Kit	Cat# *K-7355
Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials and instruction book.	

#### Range: 0-150 ppm (LR) Method: Dichromate Reactor Digestion

COD (Mercury-free) Vials Kit	Cat# K-7351S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (Mercury-free) Vials Kit	Cat# K-7356
Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials and instruction book.	

#### Range: 0-1500 ppm (HR) Method: Dichromate Reactor Digestion

COD (USEPA-accepted) Vials Kit	Cat# *K-7360S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (USEPA-accepted) Vials Kit	Cat# *K-7365
Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials and instruction book.	

#### Range: 0-1500 ppm (HR) Method: Dichromate Reactor Digestion

COD (Mercury-free) Vials Kit	Cat# K-7361S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (Mercury-free) Vials Kit	Cat# K-7366
Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials and instruction book.	

#### Range: 0-15,000 ppm (HR+) Method: Dichromate Reactor Digestion

COD (Not USEPA-accepted) Vials Kit	Cat# *K-7370S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (Not USEPA-accepted) Vials Kit	Cat# *K-7375
Kit comes in a cardboard box and contains everything needed to perform up to 97 tests (except distilled water): 98 vials and instruction book.	

#### Range: 0-15,000 ppm (HR+) Method: Dichromate Reactor Digestion

COD (Mercury-free) Vials Kit	Cat# K-7371S
Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials and instruction book.	

COD (Mercury-free) Vials Kit	Cat# K-7376
Kit comes in a cardboard box and contains everything needed to perform up to 97 tests (except distilled water): 98 vials and instruction book.	

All COD Kits require the use of a Digester Block along with a CHEMetrics Photometer, a COD Photometer, or a spectrophotometer capable of accepting a 16 mm round cell. Instruments sold separately.

A fresh reagent ampoule blank must be prepared for each series of tests; therefore the number of samples that can be tested with each kit will vary.

### Components and Accessories

Description	Cat#
Vial Rack (holds 40 vials)	A-0107
COD Zeroing Vial	A-0183
Calibration Standard, 1000 ppm (200 mL), Shelf life 8 months	A-7301 <sup>1</sup>
Calibration Standard, 10,000 ppm (200 mL), Shelf life 8 months	A-7310 <sup>1</sup>
Low Range COD Photometer (0-150 ppm)	A-7320
High Range COD Photometer (0-1500 & 0-15,000 ppm)	A-7325

<sup>1</sup> This product must be refrigerated.

<sup>2</sup> Digester not currently available from CHEMetrics. Contact [technical@chemetrics.com](mailto:technical@chemetrics.com) for recommendations.

\*Contains mercury. Dispose according to local, state or federal laws.

Instructions and SDSs are posted on our website.

If no shelf life is listed for a product, then the shelf life is at least 1 year.

<sup>1</sup> NOTE: No endorsement by Hach Company is implied or intended.