Methods

USEPA Approved

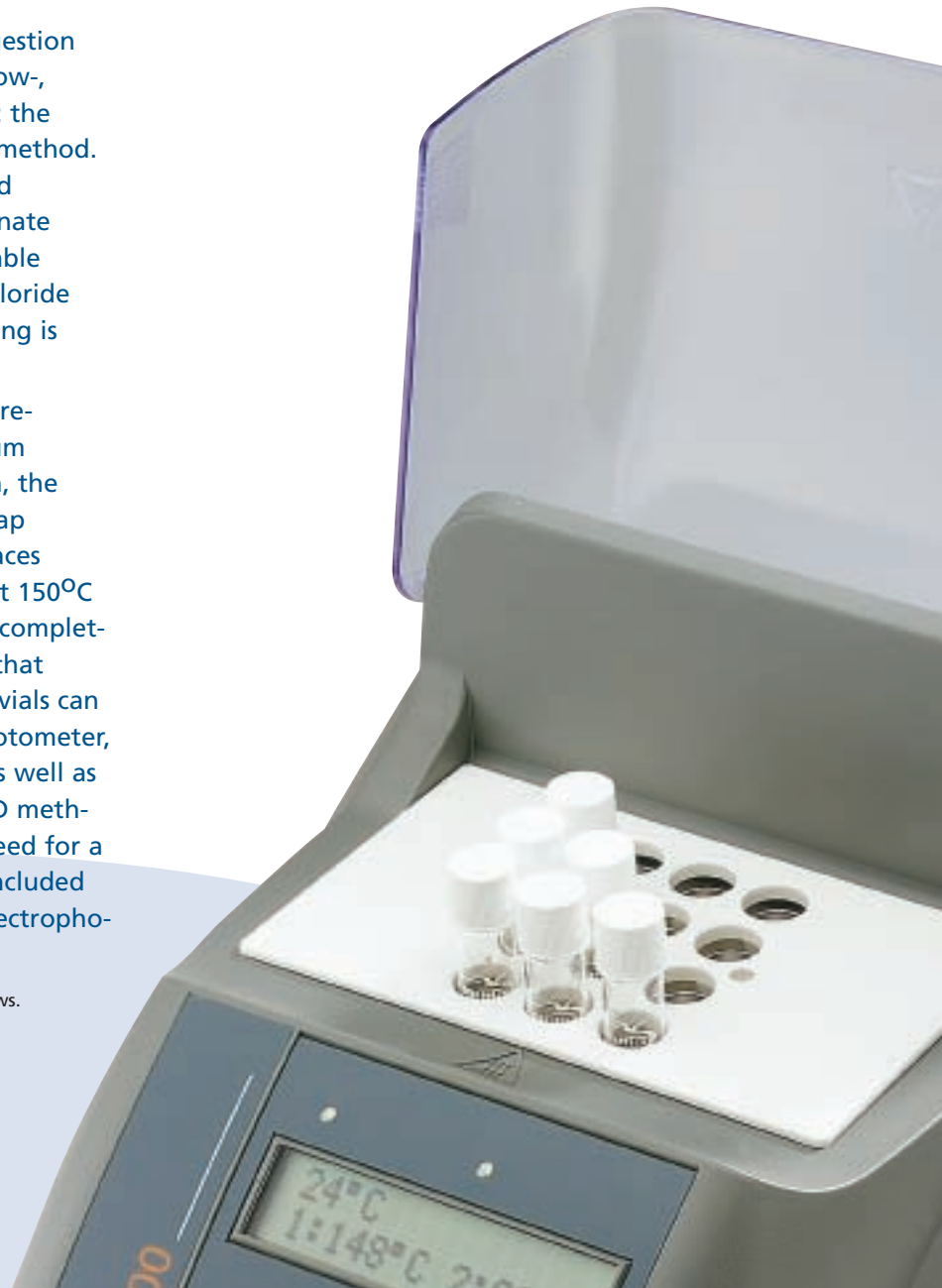
References: USEPA Methods for Analysis of Water and Wastes, Method 410.4 (1983). APHA Standard Methods, 21st ed., Method 5220 D (2005). A. M. Jirka and M. J. Carter, "Micro Semi-Automated Analysis of Surface and Wastewaters for Chemical Oxygen Demand," *Analytical Chemistry*, Vol. 47, p.1397 (1975). 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.

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.

CHEMetrics offers two dichromate reactor digestion methods for fast, easy, safe determinations of low-, mid-, and high-range COD levels in wastewater: the USEPA-approved Method*, and a mercury-free method. The products using the USEPA-approved method contain mercuric sulfate in the reagent to eliminate chloride interferences. The more readily disposable 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 digestor block. Once digestion is completed, results are obtained using any photometer that accepts 16-mm diameter cells. CHEMetrics COD vials can be directly used in our V-2000 multi-analyte photometer, CHEMetrics' single analyte COD photometers, as well as in Hach[1] spectrophotometers. Built-in Hach COD methods and calibrations can be used without the need for a new calibration. A generic calibration table is included within the CHEMetrics kit for use with other spectrophotometers.

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



See Product Price List for COD Quantity Discount Schedule.

[1] **NOTE: No endorsement by Hach Company is implied or intended.**

Instrumental Kits

V-2000 Multi-Analyte Photometer

(See page 12 for instrumental features)

Range: 0-150 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(USEPA Approved)* Vials Kit	***K-7350S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(USEPA Approved)* Vials Kit	***K-7355**

Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials, instruction book with MSDS and calibration tables.

Range: 0-150 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(Mercury Free)* Vials Kit	**K-7351S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(Mercury Free)* Vials Kit	**K-7356**

Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials, instruction book with MSDS and calibration tables.

Range: 0-1500 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(USEPA Approved)* Vials Kit	***K-7360S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(USEPA Approved)* Vials Kit	***K-7365**

Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials, instruction book with MSDS and calibration tables.

Range: 0-1500 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(Mercury Free)* Vials Kit	**K-7361S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(Mercury Free)* Vials Kit	**K-7366**

Kit comes in a cardboard box and contains everything needed to perform up to 149 tests (except distilled water): 150 vials, instruction book with MSDS and calibration tables.

Range: 0-15,000 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(Not USEPA Approved)* Vials Kit	***K-7370S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(Not USEPA Approved)* Vials Kit	***K-7375**

Kit comes in a cardboard box and contains everything needed to perform up to 97 tests (except distilled water): 98 vials, instruction book with MSDS and calibration tables.

Range: 0-15,000 ppm
Method: Dichromate Reactor Digestion

	Cat#
COD *(Mercury Free)* Vials Kit	**K-7371S**

Kit comes in a cardboard box and contains everything needed to perform up to 24 tests (except distilled water): 25 vials, instruction book with MSDS and calibration tables.

COD *(Mercury Free)* Vials Kit	**K-7376**

Kit comes in a cardboard box and contains everything needed to perform up to 97 tests (except distilled water): 98 vials, instruction book with MSDS and calibration tables.

All COD Kits require the use of a Digestor Block and the V-2000 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.

Accessories

Description	Cat#
Vial Rack (holds 40 vials)	A-0107
Digestor Block (115/230 Volt, 12 cells)	A-0111
Calibration Standard, 1000 ppm (200 mL), Shelf-life 8 months	A-7301[1]
Calibration Standard, 10,000 ppm (200 mL), Shelf-life 8 months	A-7310[1]
COD Photometer (0-150 ppm)	A-7320
COD Photometer (0-1500 & 0-15,000 ppm)	A-7325

[1] ***This product must be refrigerated.***

Instructions are posted on our website.

If no shelf-life is listed for a product, then the shelf-life is at least 2 years.

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