



New Comparative Performance Study Confirms CHEMetrics and Hach COD Vials Equivalent

Midland, VA (April 15, 2020) -- A new comparative study conducted by the Virginia-based water analysis test kit manufacturing firm CHEMetrics shows its Chemical Oxygen Demand (COD) testing products are equivalent to those manufactured by the Colorado-based Hach company.

Specifically, the study demonstrated that test results obtained for wastewater samples using CHEMetrics® HR and LR COD vials are statistically equivalent to results obtained for the same samples with USEPA Reactor Digestion COD Method, Hach Method 8000.

The new report serves to reinforce the United States Environmental Protection Agency's 2001 determination that CHEMetrics LR (0-150 ppm) and HR (0-1500 ppm) COD kits may be used for National Pollution Discharge Elimination System (NPDES) compliance monitoring.

Testing Protocol & Results

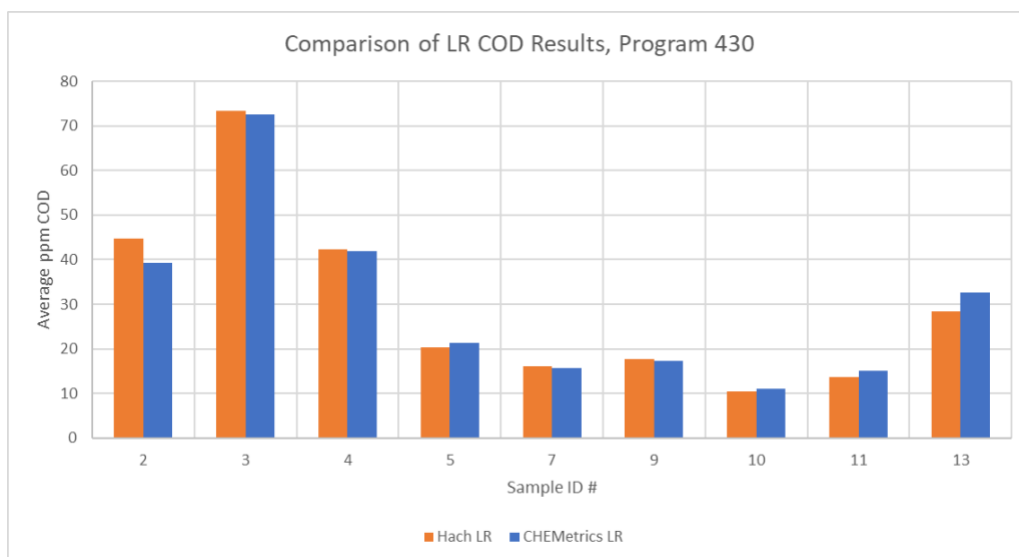
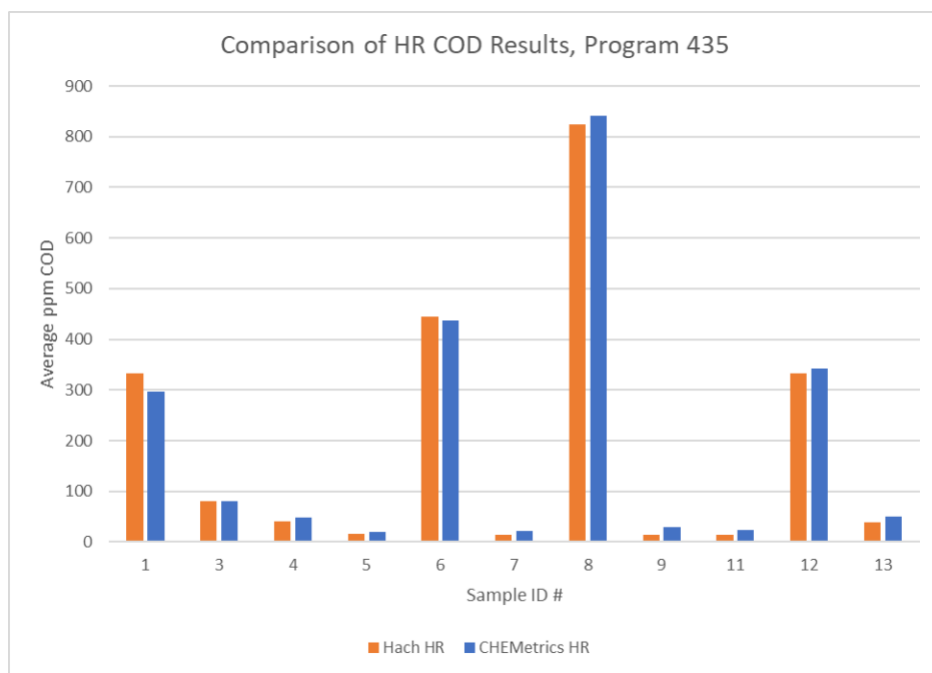
Reagents

Product Description	CHEMetrics Cat. Nos.	Lot No.	Hach Cat. Nos.	Lot No.
High Range (HR) COD Vials, 0-1500 ppm	K-7360S, K-7365	13011	21259-25, 21259-15	A9135
Low Range (LR) COD Vials, 0-150 ppm	K-7350S, K-7355	12911	21258-25, 21258-15	A9155

Sample Analysis

A total of thirteen wastewater samples were analyzed with CHEMetrics and Hach COD kits. The samples were comprised of wastewater influent and effluent from industrial and municipal facilities and were collected from multiple states in the U.S.

Samples were homogenized in a blender. A 2-mL aliquot of sample was added to each vial, and vials were digested at 150°C for 2 hours. Samples were analyzed in triplicate. Spectrophotometric measurements were performed using Hach's DR3900 preprogrammed methods.



Paired Sample T-Test

	HR COD Hach results vs CHEMetrics results	LR COD Hach Results vs CHEMetrics results
Mean Difference, ppm	-3.30	-0.04
Std Dev, ppm	15.0	2.53
n	11	9
Null hypothesis	Hach and CHEMetrics HR means are the same.	Hach and CHEMetrics LR means are the same.
T value, calculated	0.7318	0.044
T critical, 2-tailed ($\alpha = 0.05$)	2.228	2.306
Conclusion	T calculated < T critical, Null hypothesis accepted: Hach and CHEMetrics HR means are the <u>same</u>.	T calculated < T critical, Null hypothesis accepted: Hach and CHEMetrics LR means are the <u>same</u>.

Quality Control and Performance Assessment

Samples were spiked in duplicate at known COD concentrations. Initial Precision and Recovery (IPR) analyses were conducted, and Laboratory Control Standards (LCS) at several concentrations were digested and analyzed throughout testing to demonstrate accuracy at various stages of the evaluation. Method Detection Limits (MDL) and Limits of Quantitation (LOQ) were determined. Results demonstrated equivalent analytical performance between the CHEMetrics and Hach test kits for each test range. Test data is available upon request from CHEMetrics' Technical Services Department, technical@chemetrics.com.

About CHEMetrics

CHEMetrics offers an extensive line of water and wastewater testing kits that allow analysts to conduct colorimetric water analysis with greatly increased simplicity, convenience, speed and safety, both on-site and in the laboratory. Founded in 1969, the company has grown rapidly thanks to the development of new products and applications; novel proprietary manufacturing techniques; and broad acceptance of the self-filling ampoule as the basis for most CHEMetrics tests. Among the industries served: aquaculture, boiler/cooling water, chemical processing, water and wastewater treatment, education, pulp and paper, environmental testing, food and beverage, mining, petroleum refining, power generation, and semiconductor manufacturing. CHEMetrics products are available worldwide, both directly and through a global network of distributors. For more information, visit www.chemetrics.com or call (540) 788.9026.