



Bioscience, Inc.

Environmental Products & Services

ISO 9001:2015 Certified

Accu-Test™ Chemical Oxygen Demand System

COD Testing - An Introduction

Chemical Oxygen Demand (COD) is a widely used test method for determining the level of contamination in water. In fact, it is the most widely used method for this purpose. The test determines the total quantity of matter (generally organic matter) oxidizable under conditions where complete oxidation is expected (150°C, pH 2, strong oxidizing agent). The results are expressed as a concentration (mg/l or ppm) and are generally considered to quantify the total oxidizable organic matter present in the water sample.

Reagents

Chromic acid is the classic oxidizing reagent used. This reagent contains chromium ion in a +6 valence state. This ion has an orange color. Chromium +6 is a strong oxidizing agent. When chromium +6 reacts with an oxidizable compound it is in turn reduced to chromium +3, a blue green ion and the pH of the solution increases proportionately with the amount of oxidation that has occurred. Accordingly, two methods are available for quantifying results colorimetric – measuring the change in color from orange to blue green, and titrimetric – measuring the increase in pH.

Interferences

Various compounds are added in small amounts to the chromium-based reagents to stabilize the solutions and to eliminate the effects of interfering reactions. Chloride and ammonium ions are two common interfering agents. Silver and mercury salts are added to eliminate these interferences in the standard reagent configuration.

Test Kits

Historically, the COD test was run using large amounts of reagent and large samples refluxed together for extended periods. More recently pre-prepared test kits containing much smaller amounts of precisely measured reagent in spectrophotometric glass vials have gained widespread use. These test kits allow the test to be run in a short time (2 hours) using automatic heater blocks creating an internal reflux within the sealed vial. The vials are cooled and quickly read on a preprogrammed (portable) colorimeter or titrated to obtain the final results.

accu-TEST™ COD Kits

accu-TEST COD vials are field-proven, EPA accepted test kits used around the world for fast, easy COD testing. They are available in five formulations, including mercury-free.

accu-TEST™ Reactors

Bioscience offers easy-to-use, rugged COD heater blocks in 15 and 30 vial capacities.

Colorimeters

A range of colorimeters are available for COD analysis from lab bench units to light weight portable configurations.

Technical Service

One call to Bioscience and you will know what our loyal customers have always known and valued- a person always answers the phone and you get your questions answered promptly.

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