



CONCEPT LIFE SCIENCES

METHOD STATEMENT FOR THE DETERMINATION OF CHEMICAL OXYGEN DEMAND

INTRODUCTION

This method is not UKAS accredited

This procedure describes the determination of chemical oxygen demand (COD) in waters by incubation and colorimetric analysis

PRINCIPLE

In the Chemical Oxygen Demand (COD) test, a measured wastewater sample is heated with a known amount of Potassium Dichromate-Sulphuric Acid solution. Some of the dichromate is consumed in the oxidation of organic wastes. Low COD values (0 to 150 mg O₂ / l) are determined colorimetrically by measuring the remaining oxidant in the chromic (Cr 6+) valence state. Higher COD values (greater than 150 mg O₂ / l) are determined colorimetrically by measuring the consumed oxidant in the chromous (Cr 3+) valence state. In this procedure, the sample is heated for two hours with a strong oxidizing agent. Oxidizable organic compounds react, reducing the dichromate ion to green chromic ion. When the low range colorimetric method is used, the amount of Cr 6+ remaining is determined. When the high range colorimetric method is used, the amount of Cr 3+ produced is determined. The COD reagent also contains silver and mercury ions. Silver is a catalyst, and mercury is used to complex chloride interferences.

PERFORMANCE CHARACTERISTICS

SUBSTANCES DETERMINED

Uptake of dissolved oxygen by the sample during a heated 2 hours in the dark.

RANGE OF APPLICATION

- Aqueous samples up to 1000 mg / l without dilution.

LIMIT OF DETECTION

- Aqueous samples 0.1 mg / l

ANALYTICAL QUALITY CONTROL

Analytical quality control is maintained by a number of measures:

- Analysis of control samples within each analytical batch, such as method blanks and calibration standards
- Participation in external proficiency testing and interlaboratory schemes such as AQUACHECK



CONCEPT LIFE SCIENCES

REFERENCES

Standard Methods for the Examination of Waters and Wastewaters, 18 th Edition 1992,
APHA AWWA WEF