

# METHOD STATEMENT



## Determinand:

Alkalinity

## Matrix:

S Sample Type: Final effluents, trade discharges, crude sewage and the liquid extract of sludges.

## Principle of Method:

The alkalinity of natural or treated waters is usually due to the presence of bicarbonate, carbonate and hydroxide compounds of calcium, magnesium, sodium and potassium. In natural waters the alkalinity is mostly due to calcium bicarbonate. The total alkalinity is determined by titration of the sample with a strong acid and instrumental detection of end point at pH 4.5. Alkalinity to pH 8.3 can also be determined. Results are reported in mg/l expressed as calcium carbonate (CaCO<sub>3</sub>). A visual pH indicator is also often used to aid detection of the approaching end-point.

## Sampling and Sample Preparation:

Wastewater samples are normally taken in a 1L pet.

Wastewater samples are stored at 1 - 5°C.

Sludge samples should be extracted according to method WSC1.

There is no preservative required for alkalinity analysis. Samples should be allowed to reach room temperature prior to analysis.

Wastewater samples are stable for 26 days from sampling (In-House Data - Coventry).

## Interferences

The titration method is free from interferences from strongly coloured or turbid samples that affect the visual detection of the titration end point using the colorimetric method.

## Performance of Method:

### Range of Application:

LOD -1000mg/l as CaCO<sub>3</sub>

Normal reporting level: 8mg/l

### Limit of Detection:

8.0860mg/l

### Recoveries of Compounds:

Sample Type	Mg/l CaCO <sub>3</sub>	RSD Mg/l CaCO <sub>3</sub> (%)	% Recovery
Low Standard	196.8	1.74	98.41
High Standard	771.8	1.76	96.47
AQC	489.7	1.09	97.94
Final Effluent	100.2	4.57	---
Crude Sewage	155.8	3.32	---
Trade Effluent	645.6	1.95	---

### Uncertainty of measurement:

± 3.6%

## References:

The Determination of Alkalinity and Acidity in Water. 1981. Methods for the Examination of Waters and Associated Materials. HMSO. ISBN 0117516015