

Method Abstract #129

Total Hardness by Photometric Analysis

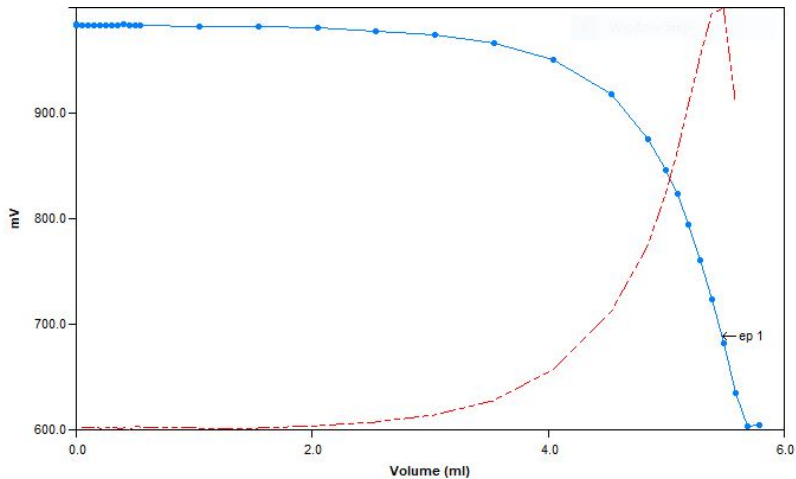
Scope and Application

This method determines the total hardness of a water sample using a colorimetric titration.

Method Summary

The total hardness is determined by the colour change in an EDTA titration at pH 10. The sample is mixed with a pH 10 buffer solution, and indicator solution and an initial reading is taken. The sample is then titrated with EDTA until the colour change endpoint is reached. The hardness is calculated using the endpoint.

Sample Titration Curve



Method Performance

Parameter	Specification
Measuring Range*	1-400 ppm
MDL**	1ppm
RSD @ MDL	12.39% or +/- 0.122
RSD @ 10ppm	1.597% or +/- 0.171
RSD @ 100ppm	0.647% or +/- 0.698

*Data for this measuring range was obtained using laboratory prepared standards formulated from calcium carbonate. The measuring range may be increased by using larger capacity analysis vessels and/or auto-dilution.

**The Method Detection Limit (MDL) calculation procedure was obtained from US EPA 40 CFR Appendix B to Part 136 - Definition and Procedure for the Determination of the Method Detection Limit. Results may differ depending on laboratory practices and sample matrix.