

Method

Fluoride occurs naturally in most water supplies, and may be added to municipal water by injection of hydrofluorosilicic acid, sodium silicofluoride or sodium fluoride into the water stream as a public health measure. Fluoride compounds are also involved in the production of aluminum, steel, uranium, cement, enamel, and plastics.

The Centers for Disease Control and Prevention currently recommend a fluoride level for drinking water of 0.7 mg/L to reduce tooth decay. A maximum contaminant level of 4 mg/L has been established by the USEPA for fluoride in drinking water to protect against skeletal fluorosis. Monitoring and maintaining optimum fluoride levels is essential to maintain effectiveness and safety of the fluoridation process.

The SPADNS Method (Arsenic-free)

References: APHA Standard Methods, 22nd ed., Method 4500 F⁻ D - 1997. USEPA Methods for Chemical Analysis of Water and Wastes, Method 340.1 (1974, 1978). Bellack, E and P. J. Schoube, 1968, Rapid Photometric Determination of Fluoride with SPADNS - Zirconium Lake. *Anal. Chem.* 30:2032.

The Fluoride MDL⁺ Kit is based on the reaction between fluoride and a red zirconium-dye lake that has been formed with SPADNS. The loss of color resulting from the reaction of fluoride with the dye lake is a function of the fluoride concentration. CHEMetrics' arsenic-free reagent is formulated with ascorbic acid to prevent chlorine interference. Results are expressed in ppm (mg/L) F⁻.



Instrumental Kits

Multi-Analyte Photometers

V-3000 Series

(See page 14 for instrumental features)

Range: 0-3.00 ppm

Method: SPADNS (Arsenic-free)

| | Cat# |
|---|--------|
| Fluoride MDL ⁺ Kit, Shelf-life 18 months | K-4009 |

Kit comes in a cardboard box and contains everything needed to perform up to 27 tests (except distilled water): 28 double-tipped ampoules, Reducer Powder with scoop, sample cup with cap, tip breaking tool and instructions.

MDL⁺ Kits require the use of a V-3000 Series Photometer or a spectrophotometer capable of accepting a 1" round vial.

SAM Single-Analyte Photometer

(See page 17 for instrumental features)

Range: 0-3.00 ppm

Method: SPADNS (Arsenic-free)

| | Cat# |
|-----------------------------------|--------|
| Fluoride MDL ⁺ SAM Kit | I-2021 |

MDL⁺ Kit, 28 double-tipped ampoules, Reducer Powder with scoop, sample cup with cap, tip breaking tool, and instructions. Shelf-life 18 months

K-4009

SAM Kit comes in a cardboard box and contains everything needed to perform up to 27 tests (except distilled water): MDL⁺ Kit, SAM Photometer, 2 sample cells with lids, 4 AAA batteries, screwdriver, and instructions.

MDL⁺ reagent ampoules for Fluoride determination may be used in photometers and spectrophotometers applying user-generated calibrations. Such calibrations should be produced by means of established methodology using NIST-traceable Fluoride standards covering the dynamic range of the analysis. CHEMetrics does not make any claims as to the accuracy of a user-generated calibration. The analyst must determine the suitability of a user-generated calibration subject to the operating conditions and specific instrument capabilities.

Kit Components common to Fluoride

| Description | Cat# |
|--|--------|
| Tip Breaking Tool, (2 ea) | A-0197 |
| Sample Cell, 24 mm, with Lid Pack (2 ea) | A-0209 |
| Sample Cup with Cap Pack, MDL+ (3 ea) | A-0211 |

Instructions and MSDS(s) are posted on our website.

If no shelf-life is listed for a product, then the shelf -life is at least 2 years..

