



# 1200 COLORIMETER FLUORIDE

## SPADNS METHOD

### MODEL 1200-FL • CODE 3674-01

QUANTITY	CONTENTS	CODE
2 x 100 mL	*Acid-Zirconyl-SPADNS Reagent	*3875-J
2 x 60 mL	*Sodium Arsenite Solution	*4128-H
1	Pipet, 0.5 mL, plastic	0353
1	Pipet, 1.0 mL, plastic	0354
1	Colorimeter Tubes, with caps, set of 6	0290-6
1	Water Sample Collecting Bottle	0688
1	1200 Colorimeter for Fluoride	26733

**\*WARNING:** Reagents marked with an \* are considered to be potential health hazards.

To view or print a Material Safety Data Sheet (MSDS) for these reagents go to [www.lamotte.com](http://www.lamotte.com).  
To obtain a printed copy, contact LaMotte by e-mail, phone or fax.

To order individual reagents or test kit components, use the specified code number.

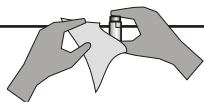
**NOTE:** This procedure uses EPA approved SPADNS Reagent System for fluoride found in method 4500-F-D, 18th Edition of *Standard Methods*, page 1-27.

### **FLUORIDE INTRODUCTION**

Fluoride may occur naturally in some ground waters or it may be added to public drinking water supplies to maintain a 1.0 mg/L concentration to prevent dental cavities. At higher concentrations, fluoride may produce an objectionable discoloration of tooth enamel called fluorosis, though levels up to 8 mg/L have not been found to be physiologically harmful.

## FLUORIDE TEST PROCEDURE - SPADNS METHOD

Read the 1200 Colorimeter Manual before proceeding. Carefully wipe tubes dry before inserting into the colorimeter chamber.



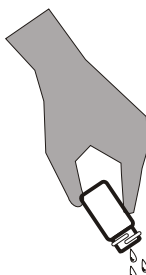
### FLUORIDE

1.



Fill the Water Sample Collecting Bottle (0688) with sample water. This will be used to dispense sample water for the tests.

2.



This test requires a reagent blank. Rinse a clean colorimeter tube (0290) with clear, colorless, fluoride free water. Fill to the 10 mL line with clear, colorless, fluoride free water.

3.



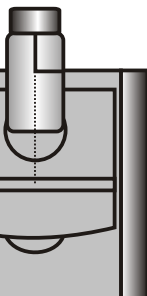
Use the 0.5 mL pipet (0353) to add 0.5 mL of \*Sodium Arsenite Solution (4128). Cap and mix.

4.



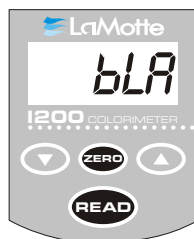
Use the 1.0 mL pipet (0354) to add 2 measures of \*Acid-Zirconyl SPADNS Reagent (3875). Cap and mix thoroughly. (This is the reagent blank).

5.



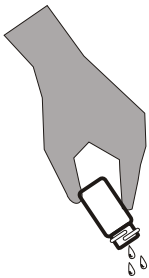
Insert the tube into the chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the sample blank.

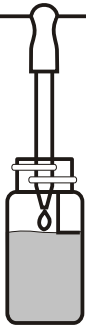
6.

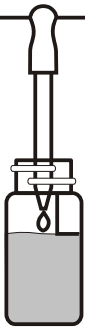



Push the **READ** button to turn the meter on. Press the **ZERO** button and hold it for 2 seconds until **bla** is displayed. Release the button to take a blank reading (0.0 ppm).

## FLUORIDE

**7.**  Rinse a clean colorimeter tube (0290) with sample water. Fill to the 10 mL line with sample water.

**8.**  Use the 0.5 mL pipet (0353) to add 0.5 mL of \*Sodium Arsenite Solution (4128). Cap and mix.

**9.**  Use the 1.0 mL pipet (0354) to add 2 measures of \*Acid-Zirconyl SPADNS Reagent (3875). Cap and mix thoroughly.

**10.**  Align the index line with the arrow on the meter, insert tube into chamber. Close the lid. Push the **READ** button. Record results as ppm Fluoride.

**NOTE:** Zeroing the meter with sample water or an empty chamber will result in an *Er-2* message. Meter must be zeroed with a reagent blank.

# **FLUORIDE SPADNS TEST METHOD SPECIFICATIONS**

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## **APPLICATION**

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Drinking and surface waters; domestic and industrial waters.

## **RANGE**

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0.0 to 2.0 ppm Fluoride

## **METHOD**

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Colorimetric test based upon the reaction between fluoride and zirconium dye lake. The fluoride reacts with the dye lake, dissociating a portion of it into a colorless complex ion and dye. As the fluoride concentration increases, the color produced becomes progressively lighter.

## **HANDLING & PRESERVATION**

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Samples may be stored and refrigerated in plastic containers.

## **INTERFERENCES**

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The following substances produce a positive interference at the concentration given:

Chloride (Cl <sup>-</sup> )	7000 mg/L
Phosphate (PO <sub>4</sub> <sup>-3</sup> )	16 mg/L
Hexametaphosphate (NaPO <sub>3</sub> ) <sub>6</sub>	1 mg/L

The following substances produce a negative interference at the concentration given:

Alkalinity (CaCO <sub>3</sub> )	5000 mg/L
Aluminum (Al <sup>+3</sup> )	0.1 mg/L
Iron (Fe <sup>+3</sup> )	10 mg/L
Sulfate (SO <sub>4</sub> <sup>-2</sup> )	200 mg/L

Color and turbidity must be removed or compensated for in the procedure. Temperature should be maintained within 5 degrees Celcius of room temperature.

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