

Fluorat-02

Fluorimetric & photometric liquid analyzer



Determination of **selenium** in drinking water by fluorimetric method

INTRODUCTION

Lumex Instruments provides sensitive and selective fluorimetric method for the measurement of mass concentration of selenium in drinking water samples using the FLUORAT-02 analyzer.



MEASUREMENT RANGE (0.1–50 µg/L)

Directives & standards for drinking water	MAC (MPL), µg/L
WHO Guidelines for drinking water quality (2011)	40
CODEX STAN 108-198 Standard for natural mineral waters	10
Drinking Water Directive 98/83/EC	10
US EPA National Primary Drinking Water Regulations	50
GB 5749-2006 Standards for drinking water quality	10
IS 10500:2012 Drinking water – Specification	10
Argentine Food Code, Chapter XII	10
QCVN 01:2009/BYT National technical regulation on drinking water quality	10
Portaria de Consolidação nº 5/GM/MS, de 28/09/2017, Anexo 7 do Anexo XX (Brazil)	10

METHOD

The fluorimetric method is based on formation of a complex compound between selenite ion and 2,3-diaminonaphthalene in acid medium, further extraction of this compound with hexane followed by measurement of fluorescence intensity of the extract using FLUORAT-02 analyzer displayed as selenium concentration in µg/l. The result appears on the PC-operated FLUORATE software.

Prior to analysis samples should be pretreated to convert hydroselenide, selenate ions and selenium from organoselenium compounds into selenite ion.

Samples need to be preserved by addition of nitric acid. Preserved sample can be stored up to 1 month before analysis.

EQUIPMENT AND REAGENTS

The following equipment and reagents are used for measuring:

- FLUORAT-02 analyzer with FLUORATE software
- Lumex Instruments optical filters*
- Selenium standard solution (1000 mg/L)*
- 2,3-Diaminonaphtalene, p.a.*
- Reagent water complying with grade 1 as defined in ISO 3696
- Hydrochloric acid, p.a.
- Nitric acid, p.a.
- Perchloric acid, puriss.
- Ammonium hydroxide solution, p.a.
- N-hexane, ≥95%
- N,N,N',N'-ethylenediaminetetraacetic acid disodium salt dihydrate, p.a.

* – included in Lumex Instruments “Selenium in drinking water” set, **Order № 300002595**



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www.lumexinstruments.com
sales@lumexinstruments.com