

Fluorat-02

Fluorimetric & photometric liquid analyzer



Determination of beryllium in drinking water by fluorimetric method



INTRODUCTION

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

MEASUREMENT RANGE

Measurement range, µg/L	Directives & standards for drinking water	MAC (MPL), µg/L
0.1–50 (drinking water)	WHO Guidelines for drinking water quality (2011)	12
	US EPA National Secondary Drinking Water Regulations	4
	GB 5749-2006 Standards for drinking water quality	2

METHOD

The fluorimetric method for the determination of beryllium is based on the formation of a complex compound between beryllium and morin in alkaline medium in the presence of masking agents followed by the measurement of fluorescence intensity of the formed complex compound using Fluorat-02 analyzer. The result appears on the PC-operated FluoRate software.

To separate and concentrate beryllium from the sample the sorption of beryllium by silica gel at pH 6.0 and following desorption with hydrochloric acid solution while heating is used.

EQUIPMENT AND REAGENTS

The following equipment and reagents are used for measuring:

- Fluorat-02 analyzer with FluoRate software
- Lumex Instruments optical filters*
- Beryllium standard solution (0.1 g/L)*
- Morin hydrate (CAS 654055-01-3), ≥85%*
- Reagent water complying with Grade 1 as defined in ISO 3696
- Hydrochloric acid, p.a.
- Nitric acid, p.a.
- Sulfuric acid, p.a.
- Boric acid, p.a.
- Citric acid, p.a.
- Ascorbic acid, p.a.
- Ammonium hydroxide solution, p.a.
- Sodium hydroxide, p.a.
- Sodium acetate trihydrate, p.a.
- Calcium chloride hexahydrate, p.a.
- Ethanol, p.a.
- *N,N,N',N'*-ethylenediaminetetraacetic acid disodium salt dihydrate, p.a.
- Silica gel for column chromatography, 10–100 µm particle size

* – included in Lumex Instruments “Beryllium in drinking water” kit, **order N° 300002531**.



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