



## DETERMINATION OF ANIONIC SURFACTANTS IN WATER BY FLUORIMETRIC METHOD

### INTRODUCTION

Anionic surfactants (A-SAS) represent, by volume, the most important group of surfactants used in cleaning products and the oldest and the largest volume anionic surfactant is soap. In concentrations 0.1 ~ 1.0 mg/L A-SAS become toxic for aquatic environment.

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

The method became the Interstate standard for anionic surfactant in water determination; the benefit of the method is that it doesn't require expensive instrumentation and tedious sample preparation.

### MEASUREMENT RANGE

Measurement range	Directives & standards for drinking water	MAC (MPL), mg/L
0.025–1.0 mg/L (0.025–1.0 ppm) (natural, drinking, and waste water)	WHO Guidelines for drinking water quality (2011)	–
	Drinking Water Directive 98/83/EC	–
	US EPA National Secondary Drinking Water Regulations	0.5
	GB 5749-2006 Standards for drinking water quality	0.3
	IS 10500:2012 Drinking water – Specification	0.2
	Resolução CONAMA No 396/2008	–
	Código Alimentario Argentino. Capitulo XII	0.5

Samples with higher A-SAS content should be diluted prior to analysis.

The method can be applied to almost any type of water: natural, drinking and wastewater.

### METHOD

The fluorimetric method of determination of mass concentration of anionic surfactants in water is based on chloroform extraction of pairs of A-SAS with Acridine Yellow G dye. The intensity of fluorescence of the formed complex is measured by the FLUORAT-02 analyzer and displayed as anionic surfactants concentration in mg/L. The result appears on the PC-operated FLUORATE software.

Samples should be analyzed within 24 hours after taking. Samples prior to analysis should be kept at 4–6°C.

### HIGHLIGHTS OF THE FLUORIMETRIC METHOD

- Affordable price for instrument and reagents
- Detection limit is lower and measurement range is wider compared with conventional photometric techniques

### EQUIPMENT AND REAGENTS

The following equipment and reagents are used for measuring:

- FLUORAT-02 analyzer with FLUORATE software
- Lumex Instruments optical filters\*
- RM of anionic surfactants ion solution (1 g/L)\*
- Acridine Yellow G (CAS No. 135-49-9), ≥90%\*
- Reagent water complying with grade 1 requirements as defined in ISO 3696
- Chloroform, puriss.
- Hydrochloric acid, puriss.
- Sodium hydroxide, p.a.
- Hexane, puriss.

\* – included in Lumex Instruments “Anionic surfactants in water” set, order code **300002513**

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