Water quality — Determination of selenium —

Part 1:
Method using hydride generation atomic fluorescence spectrometry (HG-AFS)

Qualité de l’eau — Dosage du sélénium —
Partie 1: Méthode par spectrométrie de fluorescence atomique à génération d’hydrures (HG-AFS)
Foreword

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The committee responsible for this document is ISO/TC 147, Water quality, Subcommittee SC 2, Physical, chemical and biochemical methods.

ISO/TS 17379 consists of the following parts, under the general title Water quality — Determination of selenium:

— Part 1: Method using hydride generation atomic fluorescence spectrometry (HG–AFS)
— Part 2: Method using hydride generation atomic absorption spectrometry (HG–AAS)
Introduction

This part of ISO/TS 17379 is intended for use by analysts experienced with the handling of trace elements at very low concentrations.

Inorganic selenium normally occurs in two oxidation states; Se(VI) and Se(IV). It is essential to convert all selenium species to the Se(IV) state prior to generating the hydrides. Selenium(VI) does not form a hydride.

In natural water sources, selenium compounds generally occur in very small quantities, typically less than 1 µg/l. Higher concentrations can be found, e.g. in industrial wastewater. Selenium occurs naturally in organic and inorganic compounds and can have oxidation states –II, 0, IV, and VI.

In order to fully decompose all of the selenium compounds, a digestion procedure is necessary. Digestion can only be omitted if it is certain that the selenium in the sample can form a covalent hydride without the necessity of a pre-oxidation digestion step.

The user should be aware that particular problems could require the specification of additional marginal conditions.