



MONITORIZAÇÃO DE MERCÚRIO NO MEIO AMBIENTE

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Data: 15/11/2019

(Justificar a pertinência da análise de metilmercúrio em amostras ambientais e não apenas o teor total de mercúrio) [REF1]

(Descrever a diferença da determinação de mercúrio total e metilmercúrio em amostras ambientais) [REF2]

Referências adicionais:

REF 1:

M. C. Bisinoti; W. F. Jardim, *O comportamento do metilmercúrio (metilHg) no ambiente*, Quím. Nova vol.27 no.4 São Paulo July/Aug. 2004

Link: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-40422004000400014

"Methylmercury is the most hazardous mercury species known. Due to its high stability, lipid solubility, and ionic properties, this compound shows a high ability to cross membranes in living organisms, damaging the central nervous system, mainly the brain, and the effects of chronic poisoning are progressive. (...)"

REF. 2:

J. Calderón, S. Gonçalves, F. Cordeiro, B. De La Calle, *Determination of methylmercury in seafood by direct mercury analysis: Standard operating procedure*, JRC-EC, 2013)

Link:

<https://ec.europa.eu/jrc/sites/jrcsh/files/Full%20JRC%20Tecnical%20report%20SOP.pdf>

"2 INTRODUCTION

Methylmercury, sometimes written as MeHg, is a shorthand for "monomethylmercury", and would be even more correctly "monomethylmercuric cation". As a positively charged ion it readily combines with anions and has very high affinity for sulfurcontaining anions, particularly the thiol (-SH) groups on the amino acid cysteine and hence in proteins containing cysteine, forming a covalent bond.

This standard operating procedure (SOP) describes the analysis of methylmercury based on a double liquid-liquid extraction, firstly with organic solvent and subsequently with a cysteine solution. The instrumental analysis is performed using an elemental mercury analyser [2].

Elemental mercury analyser, also known as automated or direct mercury analyser, is a single purpose atomic absorption spectrophotometer for mercury determination. It is designed for the direct mercury determination in solid and liquid samples without a need of sample chemical pre-treatment.

This analyser is based on a sample drying and subsequent thermal decomposition, followed by an electro thermal atomisation of mercury. A gold amalgamator selectively traps and pre-concentrates the mercury from the flow of decomposition products. Finally the trapped mercury is released by temperature and detected by atomic absorption at 253.7 nm.



Análise Química Ambiental

The analytical method would extract other organic mercury species in case may be present, but it can be all considered as methylmercury because it represents almost the totally of the organic mercury in food samples.”