

# PREPARATION AND ANALYSIS OF SEDIMENT SAMPLES USING GC-MS/MS.

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## Abstract

It is estimated that shortly after World War II tens of thousands tonnes of various chemical ammunitions were dumped in the Baltic Sea. Since that time, as a result of their corrosion and leaking, larger and larger quantities of chemical warfare agents (CWA), as well as products of their degradation, may admit to the marine environment. For this reason possibility to detect low concentrations of these substances becomes a very important issue.

The most popular method used for analysis of CWAs and products of their degradation is capillary gas chromatography [1]. Gas chromatographs can be coupled with various detectors such as flame ionization detector, mass detector [2], atomic emission detector [3] or tandem mass detector [4].

Gas chromatographic analysis of some of these compounds is possible only after their derivatization [5]. Derivatization reaction transforms analytes into more volatile and less polar compounds that allows their qualitative and quantitative analysis by the use of gas chromatographic method. The most often silylating agents are applied for derivatization [5], however, other derivatization agents, that have more advantageous properties in terms of lower detection limit and/or better selectivity of detection can be also used.

Analytical procedures necessary for analysis of CWAs and their degradation products in sea bottom sediment samples by means of gas chromatograph coupled with tandem mass detector were elaborated in this work. Particular attention was paid to elaboration of precise analytical procedures for preparation of samples for analysis as well as to establishment of parameters of detector operated in MRM mode.

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