

## ABSTRACT

### DETERMINATION OF POLYCHLORINATED BIPHENYLS, ORGANOCHLORINE PESTICIDES AND CHLOROBENZENES IN SLUDGE AND SEDIMENT SAMPLES BY GCxGC-ECD

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Gas chromatographic analysis of polychlorinated biphenyls, organochlorine pesticides and chlorobenzenes is one of the most common analyses performed by environmental laboratories. Comprehensive two-dimensional gas chromatography allows simultaneous analysis of different classes of compounds. The objectives of this study were to achieve within- and between-class separations for target contaminants and to quantify them in sludge and sediment samples. With only few coelutions present, the results showed that DB-1xRtx-PCB is a powerful column combination providing excellent chromatographic separation. Reference materials and “real-life” sediments and sludges were analysed and the results were compared to their reference values and previous GC data. This method was shown to be precise and accurate for the standards and reference materials tested as well as a very feasible method for the sediment and sludge samples analysis. Furthermore, this GCxGC method may potentially be used to assess the presence of other compound classes in samples including dioxins, dioxin-like compounds and new emerging contaminants in the environment.