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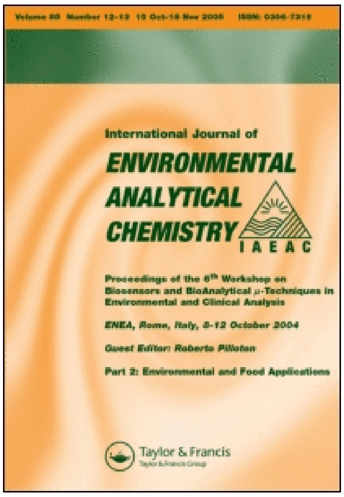

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# Abstracts to Forthcoming Papers

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# Abstracts to Forthcoming Papers

## DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS IN MARINE SEDIMENTS, USING SOLVENT EXTRACTION, THIN-LAYER CHROMATOGRAPHY AND SPECTROFLUORIMETRY

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Polycyclicatic hydrocarbons (PAH) are present in bottom sediments of rivers, estuaries and coastal waters. Few analyses of sediments for PAH have been reported previously, and they have generally determined benzo[a]pyrene (B[a]P) only. The method described here was developed and used to determine B[a]P and perylene quantitatively, and to identify several other PAH in a range of sediments from south-east Australia. A sequence of liquid-liquid extraction using cyclohexane and dimethylsulphoxide, and two stages of thin-layer chromatography, was used for purification and separation of individual PAH which were identified and determined by spectrofluorimetry. The minimum concentrations detectable using this method were 2.5 μg/kg for B[a]P and 1.5 μg/kg for perylene starting with a 30 g sample of dried sediment. At the 500 μg/kg level both PAHs were determined with a coefficient of variation of 5.7 %.

## LIQUID CHROMATOGRAPHIC ANALYSIS OF PHTHALATE ESTERS IN DUTCH RIVER WATER

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Analysis of the phthalate esters di-(2-ethylhexyl) and di-*n*-butyl phthalate—DEHP and DBP, respectively—has been carried out by means of (a) high-performance liquid chromatography (HPLC) in the system silica gel hexane-dichloromethane (1:2, v/v), containing 0.1–0.2 % of ethanol, and (b) gas chromatography (GC) on 4 % OV-101 on Chromosorb W (HP) at a temperature of 240°C. Detection was done by U.V. absorption spectrometry at 233 nm and flame ionization, respectively.

The procedure has been used to analyse series of water samples of the Dutch rivers Rhine,

IJssel and Meuse. Since the phthalate levels of the samples rapidly decrease with time, extraction invariably was performed without delay at the sampling station. The DEHP values on an average are approx. 1 ppb for all three rivers; for DBP, values of 0.3–0.5 ppb are found for the rivers Rhine and Meuse, while a somewhat high value of 2 ppb is reported for the river IJssel. The results obtained by HPLC and GC show good agreement; the former technique is less time-consuming.

## AMMONIUM PYRROLIDINEDITHIOCARBAMATE-METHYL ISOBUTYL KETONE-GRAPHITE FURNACE ATOMIC ABSORPTION SYSTEM FOR SOME TRACE METALS IN DRINKING WATER

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A critical study of the solution conditions and other parameters affecting the reliability of the ammonium pyrrolidinedithiocarbamate–methyl isobutyl ketone (APDC-MIBK) extraction system for Ag, Cd, Co, Cr, Cu, Fe, Mn, Ni, and Pb was made.

The following parameters were investigated in detail: pH of the aqueous phase prior to extraction, amount of APDC added to the solution following pH adjustment, the length of time needed for complete extraction and the time-stability of the chelate in the organic phase. Except for Ag and Cr which were quantitatively extracted only in a very narrow pH range (1.0–2.0 and 1.8–3.0, respectively), and Cd and Pb which were stable in the extracted MIBK phase only for 2–3 hrs the solution conditions for quantitative extraction were not critical for the other metals. Simultaneous extraction of all the metals except Cd and Pb was also investigated. Good recoveries (100 ± 10%) were obtained for a number of spiked raw, treated and distributed drinking water samples covering a wide range of hardness. It is concluded that the APDC-MIBK-GFAA procedure is reliable and precise under proper solution conditions. The method is now routinely used in our laboratory for the determination of a number of the above metals in various Canadian drinking water supplies.

## THE SAMPLING AND GAS CHROMATOGRAPHIC ANALYSIS OF FATTY ACIDS FROM LANDFILL SITES

B. A. Colenutt, *School of Chemistry, Brunel University, Uxbridge, Middlesex, England*

A gas chromatographic technique has been developed and applied to the qualitative and quantitative analysis of fatty acids in the interstitial gases of landfill sites. Acetic, propionic, and butyric acids were those shown to be present in the highest concentrations. The fatty acid concentrations were higher at a site where landfill had been completed two years ago than at a site where operations had finished twenty-five years ago.

The concentrations of fatty acids measured were well above the odour thresholds. These compounds may be responsible for the unpleasant smells frequently associated with landfill gases.