

Analysis of 4-Nitrotoluene in Water by Gas Chromatography/Mass Spectrometry

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Analytical method of 4-nitrotoluene (4-NT) in water was developed by gas chromatography/mass selective detector/selected ion monitoring (GC/MSD/SIM). 4-NT was extracted with diethyl ether. Organic layer was washed with 5 % sodium chloride solution. The influence of solvent and evaporation condition on extraction of 4-NT were examined. The retention-time of 4-NT peak was 7.72 min. Coefficient of variation (CV) of 4-NT (ng) within day and day-to-day was ranged from 7.0 to 14.6 % and from 7.7 to 20.8 %, respectively. Recovery of 4-NT was ranged from 84 to 109 %, and detection limit of 4-NT was less than 1 ng/ml.

[PA4-16] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Analysis of Benzophenone in Water by Gas Chromatography/Mass Spectroscopy

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Analytical method of benzophenone (BZP) in water was developed by gas chromatography/mass selective detector/selected ion monitoring (GC/MSD/SIM). BZP was extracted with n-hexane in the presence of sodium chloride. Hexane layer was washed with 5% sodium chloride solution. After extraction of n-hexane the residue was dissolved in 0.3 ml of n-hexane and this solution was applied to GC/MSD. The retention time of BZP was 11.12 min. Coefficient of variation (CV)% of BZP (25-50 ng/ml) within and between days was ranged from 2.5 to 15.1%. Recovery of BZP was ranged from 67 to 152% and detection limit of BZP was less than 10 ng/L.

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Evaluation of DNA strand-breakage of seven phthalate analogues, potential endocrine disrupting chemicals, using single cell gel electrophoresis (Comet assay)

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Phthalates have been used as plasticisers in many plastics since the 1930's, with a quarter of the total plasticiser ever produced being diethylhexylphthalate. Some phthalate was also reported to be a potential carcinogen and to have estrogenic activity. Therefore, we are interested in elucidating the relationship between DNA damage and estrogenic activity. Among phthalate compounds, seven chemicals not listed in International Agency for Research on Cancer (IARC) monographs and EDCs were chosen. Single cell gel electrophoresis (SCGE, Comet assay) is a sensitive and rapid method that can be visualized from images of DNA-strand breakage in individual cells. Based on our previously established optimal conditions of SCGE, seven phthalate analogues of diallyl phthalate [131-17-9], diisodecyl phthalate[26761-40-0], dinonyl phthalate[84-76-4], butyl benzyl phthalate