

CHARACTERIZATION OF BALTIC SEA DISSOLVED ORGANIC MATTER AS OIL SHALE PRECURSOR BY SEPARATION AND FRACTIONATION BY ADSORPTION CHROMATOGRAPHIC XAD METHOD, AND SIZE EXCLUSION CHROMATOGRAPHY

V. LEPANE*

Department of Analytical Chemistry,
Tallinn Technical University
5 Ehitajate St., Tallinn, 19086, Estonia

Dissolved organic matter (DOM) from Baltic Sea water has been isolated and fractionated by adsorption chromatographic XAD method. The XAD-4 and XAD-2 resins were connected in sequence for increasing the adsorption efficiency. The obtained hydrophilic and hydrophobic fractions were characterized by size exclusion chromatography (SEC) with fluorescence detection at 350 nm excitation and 450 nm emission. The percentages of each fraction were estimated using indirect method via size exclusion peak areas. The increased separation efficiency obtained in the present study allowed to separate exclusion peak into several molecular weight fractions. The average molecular weights (weight-average and number-average) were calculated for different size fractions using polystyrene sulfonates as standard substances. The weight-average molecular weight for the fraction of humic substances was found to be characteristic to aquatic fulvic acids.