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Physical Forms of Distribution of Heavy Polycyclic Aromatic Hydrocarbons in Natural Water of Dnieper River in Kyiv Region

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The article shows data concerning levels of concentrations and disperse-phase distribution of heavy polycyclic aromatic hydrocarbons (PAHs) in water of Dnieper river in Kyiv region. The total concentration of heavy PAHs (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene) ranged between 1.9 and 91.2 ng/dm^3. Shares of heavy PAHs associated with rough and thin fractions of suspended particulate matter (SPM) and their water-soluble part were on average 35, 41 and 24% respectively. It was established, that share PAHs associated with SPM is in direct relation to the number of aromatic cycles in the molecule of the compound. Thus, 65% five- and 77% six-cycle PAHs are associated with SPM.

Keywords: natural water, heavy PAHs, benzo(a)pyrene, hydrophobicity, disperse-phase distribution