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Polychlorinated naphthalenes in sediments from the industrial region of Bitterfeld

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Abstract

Bitterfeld (Germany) was a major site of chemical production in the former German Democratic Republic with chloralkali electrolysis as the basic process. Effluents were dumped via the creek Spittelwasser into the rivers Mulde and Elbe. Despite the fact that the chloralkali industry is known as a possible source of polychlorinated naphthalenes (PCNs), to date no data about PCN pollution in the region of Bitterfeld and downstream regions are available. Therefore, sediments of the creek Spittelwasser were isomer-specifically analysed for penta-, hexa- and heptachlorinated naphthalenes using GC/MS. Concentrations of 880, 543 and 1120 ng/g dry weight were found, respectively. The isomer pattern suggests chloralkali industry as the major source of PCN contamination. Because of their toxicological relevance we suggest to include PCNs into monitoring and risk assessment programs of the rivers Mulde and Elbe downstream of Bitterfeld.

Abstract

Polychlorinated naphthalenes are a major contaminant of sediments in regions of the former German Democratic Republic.

Author Keywords: PCNs; Sediments; Isomer-specific analysis; River Elbe

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