Perfluorinated chemicals in Swiss groundwater – results of the National Groundwater Monitoring NAQUA

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Abstract Perfluorinated chemicals (PFC) are the subject of increasing public concern. Due to their hydro- and oleo-phobic properties, they are used in diverse industrial processes, and occur in several consumer products. The thermal and chemical stability of certain PFC has resulted in their global distribution in the environment. In a pilot study of the Swiss National Groundwater Monitoring NAQUA, PFC were detected at 21 of 49 sampled NAQUA monitoring sites. Except for one monitoring site, concentrations were below 100 ng/L, in most cases even below 10 ng/L. The highest concentrations were generally recorded for Perfluorooctanesulfonate (PFOS). All monitoring sites at which PFC were detected are situated in unconsolidated aquifers along rivers. The discharge of treated or untreated wastewater into rivers and streams and the subsequent infiltration of these waters into groundwater appear to be the major source of PFC in Swiss groundwater.

Key words perfluorinated chemicals; groundwater monitoring; NAQUA; PFOS; Switzerland