

# Usability of passive air sampling results for long term trend analysis and time trends assessment of POPs

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Description of a relationship between the amount of persistent organic pollutants sequestered by passive air samplers and their ambient air concentrations is subjects to study for many years. However, this information may not be necessary for some applications, especially when the concentration itself is not the main aim of a monitoring. In case, that the knowledge of the air concentration serves only as a foregoing step before an assessment of long-term behaviour, it is possible to utilize annually aggregated results of the passive sampling directly in units of analyte mass per sampling media instead of the ambient air concentration. In this study, two sets of 30 ten-year-long time series of simultaneous passive and high-volume active air sampling were used for a comparison of temporal trends. Fifteen polyaromatic hydrocarbons, seven polychlorinated biphenyls and eight organochlorine pesticides were investigated. In most cases, a good agreement was observed between the trends derived from passive and active monitoring with the exception of several compounds affected by sampling artifacts such as breakthrough of the high-volume sampler or very low concentration of the analyte, being below the limit of quantification of an analytical method for passive sampler. Half-lives of analyzed compounds in ambient air are computed and discussed together with other values known from literature.