AIR POLLUTION

INDOOR AIR SAMPLING STRATEGY

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Introduction: Indoor air quality is an important factor affecting human health. The role of indoor air on total inhalation exposure is given by the time spent in a given environment and the concentration of substances therein. The majority of people spend 2–3 hours outdoors (12%) and the remainder of their time at home, at work, in public transport and other indoor environments. The significance of indoor air on inhalation exposure is not the same for all substances and changes in time via societal and lifestyle changes. Health protection and exposure assessment is dependent on identification of indoor environmental factors, evaluation of their risk potential and proposals for remedial measures. Whilst indoor and outdoor air has been subject to legislative norms for some time in the Czech Republic, an independent norm concerning indoor air in selected habitats has been in existence since January 1, 2005. Legislative requirements cannot be fulfilled without the ability to secure representative and defined samples, unified analytical procedures and interpretation of data gathered. The representational value of samples can be considered as the most important requirement in view of the fact that sampling must cover potential exposure as well as temporal and spatial variations.

Indoor Air sampling strategy: The reasons for measuring indoor air quality are most frequently performed for the purposes of testing limits or recommended values, remedial measures, measurements for determination of exposure or causality between substances in the indoor environment and health, or assessment of health risks. Frequently, measurements are carried out for legal reasons or complaints. The proposed sampling strategy is based on norm "ISO 16000-1, Indoor Air, Part 1: General aspects of sampling strategy", issued in 2004. The selection of a specific strategy must, by definition, be based on the requirement (actual reason for measuring) and technical options. An important factor comprises the specific properties of the environment in question, including:
- the sampling as such should not influence the regimen in the areas measured or resulting air quality values
- the values measured are not to be seriously affected by any activities in area
- difficulties in the quantification of substance exchange between indoor and outdoor environments
- monitored indoor air pollutants often have sources in outdoor air

Conclusion: It cannot be expected that precise and direct procedures will be prescribed in the case of requirements for representative samples of indoor air (spatial and temporal). The actual situation is and will be finding a compromise between demand and realistic possibilities. Our aim has been to present pertinent data for sampling personnel as well as data for specialised debate as regards a given procedure in specific cases.