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STUDYING INDOOR AIR QUALITY IN A TYPICAL RESIDENTIAL APARTMENT IN ATHENS, GREECE

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EXTENDED ABSTRACT

The objective of the present work is to study the indoor air quality in a typical non-smoking residential apartment of Athens during winter and summer. Measurements of the indoor and outdoor concentrations of nitrogen oxides, sulphur dioxide, ozone, and TVOC's were performed along with measurements of indoor and outdoor temperature and relative humidity and ambient wind speed and direction. The measurements covered two different time periods of the year (summer and winter) in order to address questions regarding seasonal variability. Furthermore, the measurements included a ten days period for each season in order to focus on the differences between weekends and working days. For selected cases the air exchange rate was measured with the SF6 method. The ratios of the indoor concentrations to the respective outdoor values (I/O) were calculated for all species and the influence of the outdoor air pollution through the ventilation process was investigated.

It was found that the air within the sampling room was well mixed and uniform. Furthermore, indoor concentrations of all measured species seem to follow the outdoor values indicating the importance of outdoor to indoor transport and the ventilation rate of the apartment. Average values of indoor to outdoor ratios were smaller than unity, reflecting the fact that no indoor sources existed during the measurements. The differences of the levels of the indoor concentrations, being observed during the experimental period, reflected the weekly and seasonal variations of the outdoor air quality.

Key words: Indoor Air Quality, Indoor to Outdoor Ratio