

# **SIZE AND CHEMICAL COMPOSITION OF THE FINE PARTICULATE IN THE URBAN AREA OF MILAN**

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Atmospheric pollution due to airborne fine particles is an environmental issue of increasing concern in the metropolitan area of Milan, the main city of Lombardy, Italy's most industrialised region. Results of several seasonal monitoring campaigns, carried out in the city of Milan are reported. Simultaneous monitoring of PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1</sub> has been performed by means of a low volume particle size laser analyser: observed particle counts are analysed for their distribution with respect to the diameter. Moreover, workdays and weekends particle counts data are analysed for assessing the effect of the reduced traffic circulation on Sundays. Particle counts data are converted to mass concentrations of PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1</sub>: the mass contribution of the two latter finest cuts to PM<sub>10</sub> concentration levels is evaluated. PM<sub>2.5</sub> speciation for the major chemical components has been performed on samples collected during specific campaigns, carried out by means of a high-volume gravimetric automatic sequential sampler. Dust-loaded filters are analysed for the elemental mass composition, the main ionic components (chloride, nitrate, sulphate, ammonium) and the carbon species, elemental carbon (EC) and organic carbon (OC). The elemental composition has been evaluated by X-ray fluorescence, the ionic components have been extracted ultrasonically from the filter sample and determined by means of the ion chromatography technique, the carbon species have been determined by Thermal-Optical Transmission (TOT) method. Information obtained by size distribution and chemical composition analyses allow for the assessment of the source contribution to the observed concentration levels, with particular respect to the secondary source.