

## Chlorinated Organics In The Air Of Taranto, Southern Italy

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Due to the duty pollution levels and the variety of emission sources, Taranto, a city of Southern Italy, represents an interesting case study of urban pollution.

There, over 200,000 inhabitants are exposed to harmful effects of the presence of intense industrial activities (steel factory, petrol refinery, cement plant and harbour), of rush motor vehicle circulation and, finally, of meteo-climatic conditions which often promote the accumulation of pollutant and developing of photochemical processes.

During 2004 two intensive campaigns (in winter and summer) were carried out, aimed to monitor toxic organic components of the atmosphere at three locations in the Taranto countryside, which are exposed to different emission impacts. The sites were *Tamburi*, a quarter in downtown Taranto located just close to steel plant, *Statte*, a town 8 km N of the city, lying usually below the emission plume coming from industrial quarter, and *Palagiano*, a rural site representative of background pollution.

Concurrently to study of suspended particulates (discussed elsewhere), also the semi-volatile fraction of the atmosphere was investigated, with special attention for organic chlorinated compounds OCC, e.g. chlorinated biphenyls PCB, dioxins PCDD and furans PCDF. Our concern was addressed to acquire the concentration levels reached by OCC and identify the respective distribution profiles (i.e. group fingerprints), to attempt the source assessment with respect to ambient pollution level.

For this purpose, three *high-volume* equipment were used, which collected PM<sub>10</sub> air particles onto quartz filter membranes QFMs and, backflow, semi-volatile gaseous species onto polyurethane cartridges PUFs. Collected organics were recovered by extracting loaded filters and cartridges with organic solvent, then analytes were cleaned up and separated by column chromatography and finally processed through CGC-MSD or CGC-MSMS. Several <sup>2</sup>H- or <sup>37</sup>Cl-marked isotopes were spiked at different steps of procedure, in order to account for sample losses and detector variability.

Shortly, the recorded data confirmed the very different degree of ambient pollution at the three sites, although all groups of OCC were found at all of them. Besides that, the comparison of OCC fingerprints with those presented in technical literature is proceeding, in order to associate their occurrence to industrial and/or vehicle exhausts. Raw data and discussion will be provided at the Conference.

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