

AIR QUALITY MEASUREMENTS - IN 8 LOCATIONS OF TIMIȘOARA

Goal of the project

- Depicting air quality characteristics during the summer episodes
- Continuous monitoring in potential risk areas, selected by the Municipality
- Applicability of only accredited measurement techniques and fully of standard ISO 17025
- Meteorological data acquisition and monitoring
- Graphic and Table presentation of the monitoring results presenting the NO, NO₂, NO_x, SO₂, CO, PM₁₀, O₃, CH₄, COV, COT concentrations
- Interpretation the results, mainly by the legal limits, but also by comparison of the results measured in the North and South area of the city.
- Proposal of potential possibilities to reduce the risks for the future, based on the achieved results

Short description of the project

- The air quality of urban air is of maximum importance for the sustainable development of the society. Thus in Timisoara in addition to the fix monitoring devices, owned by the Ministry of Environment, Water and Forest, in particular locations, using a mobile laboratory, representative measurements have been carried out, for depicting especially, during the interval June-October 2015, the species that are registering exceeding over the legal limit, and focusing especially on particulate matter PM.
- The episodes covered more than 6-7 days, and refer to traffic induced polluted areas, industrial areas, as well as areas that should be protected (as they are close to schools, kindergartens, blocs of flat, residential neighborhoods, etc.)

Table 1 -Locations that were subject of the continuous on line measurements

Calea Aradului nr. 56 (cartier Aradului)	04 - 11.06.2015
str. Silviu Motohon nr. 53 (cartier I.I. de la Brad)	13 - 14.06.2015 17 - 23.06.2015
str. I.I. de la Brad nr. 2 (cartier I.I. de la Brad)	26.06-03.07.2015
str. Moise Nicoară nr. 17, (cartier Fabric)	07.07-17.07.2015
Calea Martirilor nr. 64 (cartier Calea Girocului)	01.09-08.09.2015
str. Chișodei nr. 1 (cartier Fratelia)	08 - 15.09.2015
str. Mureș nr. 8 (cartier Calea Șagului)	17.09-25.09.2015
Piața Doina (cartier Calea Șagului)	29.09-06.10.2015

Implementation period

June- November 2015

Project implemented by

Politehnica University of Timisoara through Laboratory for fuel, ecological analysis, and dispersion of pollutants (Laboratorul de Analize de Combustibili, Investigații Ecologice și Dispersia Noxelor - LaCIEDiN)



Main activities

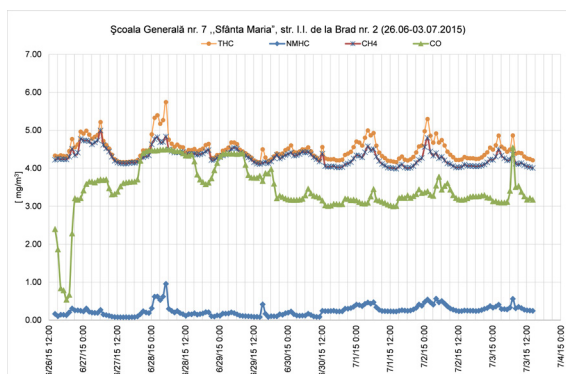
- Positioning of the lab with access to electrical supply and not affecting the normal activities
- Calibration of all instruments, running basic tests
- Starting of the continuous measurements and creating the data base
- Control of the results
- Control of the equipments by daily check (recalibration with control gases, DAKK type)
- Generating the results based on the filtered real data
- Interpretation of the results
- Indication of potential solution for corrections of the state of art

Results

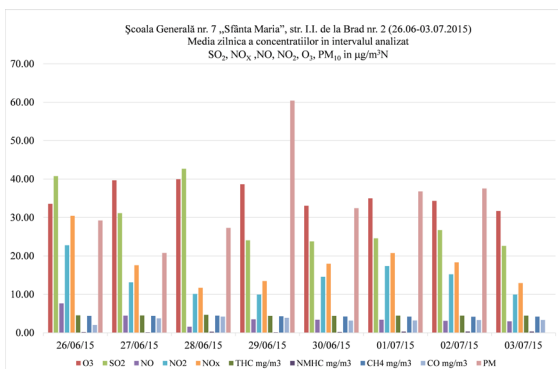
- In reference to PM₁₀, one attested several episodes (locations, time intervals) when the limits were exceeded. PM₁₀ (and as well PM_{2.5}) are very dangerous and solutions (continuous and preventing) have been proposed. They are general such as correct control at the source (mobile, industrial fix, residential fix, surface sources), but also to fluidization of the traffic (especially using the space for rolling and not parking), concept of internal rings, finalization of the major external ring road, plantation of more green areas , etc.

Results

- A comparison between episodes monitored in the South and the North of the city does not highlight special aspects concerning to what it is already known: overcoming the occasional average PM10 are also seen with preponderancy in the area is South. But it is certain that all measured concentrations (gaseous) are directly proportional to traffic (intensity, quality fleet way of traveling, fluency control systems, etc.). Limiting the source of emissions (industrial, domestic, of any kind, even small) must continue and just a quality management in companies (public and private) can minimize background pollution (level overlapped emission from polluting vehicles or other sources) in a city. The shift to a quality public transport (comfort associated) covering sensitive areas, but best of all (including peri-urban areas) is of course a method as known, recommended by many studies that can prove and enforce clear beneficial effects.



Average (over 60 minutes) concentrations: THC, NMHC, CH₄, CO



Average (over 24 hours) concentrations

Applicability and transferability of the results

- Increasing the surface of green spaces in order to achieve the goal of more than 26 m² / capita, including as well play, entertainment, sports, creative areas, traffic regulations, creating of new spaces, free traffic (pedestrian and bicycle) - especially in the historical and cultural areas - will certainly contribute to reducing pollution. Also, continuous monitoring by stations permanently, but also through mobile laboratories accredited located in areas endangered (or likely to be jeopardized by seasonal various human activities) are other needs and direct tasks of the Municipality for the future, which must take major responsibilities in preserving air quality, the minimum condition for a civilized life and sustainable development of the city, providing public health in the short, medium and long term and reducing risks.
- The research demonstrates that an independent accredited body, conducting professional & responsible activities, in accordance with legal requirements and regulations may examine successful and monitor air quality, making a decisive contribution to ensuring the comparability of results of assessment and compliance, generating confidence in the quality and safety of services.
- Measurements were performed according demands for bodies accredited laboratories, inspection bodies and certification as stipulated in the standard DIN EN ISO 17011th / IEC. This standard defines accreditation as "confirmation by a third party, which officially establishes that a conformity assessment body is competent to carry out specific conformity assessment tasks".

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