

MICROPOLLUTANTS IN AMBIENT AIR

AIR 11

Atmospheric micropollutants include a multitude of very diverse substances (TMs, VOCs, PAHs, POPs, etc.) present in very low concentrations in the air. Some are gaseous, others are components of airborne particulate matter (PM). Their toxicity is highly variable and many of them are still not well understood. Some micropollutants are monitored.

TMs: some local problems

The concentrations of trace metals (TMs) measured in ambient air in Wallonia have generally been decreasing for nearly 25 years following a significant reduction in their atmospheric emissions¹. As regards the TMs of greatest health concern, and for which a limit value or target value exists, the trends observed in previous years are confirmed for 2014:

- annual mean concentrations of particulate Pb (PM_{10}) more than 25 times below the limit value² of 500 ng/m³ for all stations (maximum 18.64 ng/m³ in Lodelinsart);
- annual mean concentrations of particulate Cd (PM_{10}) more than 8 times lower than the target value³ of 5 ng/m³ for 15 out of 17 stations. However, they were above (i) the target value in Sclaigneaux (8.39 ng/m³), (ii) the annual mean concentrations of the other stations in Ath (1.96 ng/m³), the target value being met. Both stations are influenced by non-ferrous metal processing industries;
- annual mean concentrations of particulate Ni (PM_{10}) lower than the target value³ of 20 ng/m³ for all stations (maximum 7.40 ng/m³ in Lodelinsart);
- annual mean concentrations of particulate As (PM_{10}) more than 10 times lower than the target value³ of 6 ng/m³ for all stations (maximum 0.57 ng/m³ in Sclaigneaux).

It should be noted that the risks associated with TMs in the air can be indirect: they accumulate in soils from which they are likely to contaminate food chains.

Organic micropollutants: standards met

As regards the organic micropollutants of greatest health concern, and for which a European standard exists, the trends observed in previous years are confirmed for 2014:

- the annual mean benzene concentrations (carcinogenic VOCs) were more than 5 times lower than the limit value² of 5 µg/m³ for all stations (maximum 1.00 µg/m³ in Liège (Chéra) and 0.98 µg/m³ in Herstal);
- the annual mean concentrations of benzo(a)pyrene (POP and the usual toxicity indicator for PAHs) were more than 4 times lower than the target value³ of 1 ng/m³ for all stations (maximum 0.25 ng/m³ in Liège (Chéra), due to the influence of steelmaking activities and road traffic).

It should be noted that as regards PAHs, food is another important route of exposure.

Continuing efforts

The downward trend in the levels of TMs and organic micropollutants monitored in ambient air is due, on the one hand, to the measures taken to reduce their emissions¹ and, on the other hand, to the significant reduction or phasing-out of certain industrial activities, particularly in the steel industry. Measures are also included in the Air Climate Energy Plan 2016-2022 (*Plan air climat énergie 2016-2022 - PACE*)⁴ (e.g. the Action Plan for POPs).

[1] → AIR 5 | [2] Directive 2008/50/EC | [3] Directive 2004/107/EC as amended | [4] → AIR Focus 3

Fig. AIR 11-1 Annual mean concentrations of several micropollutants in ambient air in Wallonia (2014)

