

The French Indoor Air Quality Observatory: from knowledge to actions

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The French IAQ Observatory



- Created in 2001
- Objective: To coordinate and develop indoor air research activities at a national scale
 - To improve knowledge on IAQ in buildings
 - To provide information to policymakers
 - To publish recommendations for professionals and the general public
- Financial support from Ministries in charge of Housing, Health, and Environment, the Agency for Energy Management (ADEME), the Agency for Food, Environmental and Occupational Health & Safety (Anses)



Nationwide surveys

- Measurements (air and settled dust)
- Collection of descriptive data related to the building and the occupants
- Questionnaires on health and perception



School survey (2013-2017): 308 schools randomly selected; measurements in 602 classrooms



Housing survey (2020-2022): 600 dwellings randomly selected



Concentrations in $\mu g/m^3$



Semi-volatile organic compounds are omnipresent

% of dwellings where the substance is detected (light blue) or quantified (dark blue)





Indoor air quality in <u>schools</u> is poor

40% of schools have at least one classroom with a very high air stuffiness index (≥ 4)

25% of schools have a mechanical ventilation system

Windows are not regularly open

19% with lower concentrations in both air and dust

Air stuffiness index based on CO₂ measurements

(Canha et al, Indoor Air, 2016)



Highest value per school among the monitored classrooms (1 to 3 per school)

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Socio-economic costs of indoor air pollution

Calculations feasible for 6 pollutants:

- \circ benzene
- trichloroethylene
- \circ radon
- o carbon monoxide
- particles (PM_{2.5})
- o environmental tobacco smoke





A tool for policymakers: supporting decision

Mandatory labelling of building products' emissions





Mandatory **monitoring** of IAQ in schools

Mandatory visual inspection of the ventilation and windows

Periodic monitoring every 7 years:

- Formaldehyde
- Benzene
- Carbon dioxide
- (Tetrachloroethylene)

Building audit to identify sources of indoor pollution and to take actions Mandatory control of mechanical ventilation systems in new buildings at the delivery to ensure proper operation



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Still a lot of challenges





Thermal environment Acoustics Indoor air quality Light



Identify new risks



Building energy retrofit: don't forget IAQ (ventilation)



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Thank for your attention!

http://www.oqai.fr

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