Air Inter-Laboratory Comparisons (ILC): sampling and analyses

For more than 25 years, Ineris has been organising Inter-Laboratory Comparisons (ILC) to improve sampling and analysis practices in the field of air: stack emissions, indoor air and now workplace air. Inter-Laboratory Comparisons are a key tool in terms of quality control and participation in these comparisons is necessary for accredited laboratories.

Automatic samplings and analyses

- Compare sampling practices :
  - test the conformity of materials and practices
  - identify results dispersion sources
  - propose improvements to benchmarks.
- Estimate individual and collective performance level of participants.
- Demonstrate the equivalence of an alternative measurement method to a reference method (EN 14793): implemented upon request.

Analyses

- Improve the quality of analytical method implementation.
- Allow participants to judge the accuracy of their results in relation to reference values or assigned values and evaluate their repeatability.
- Obtain a satisfactory comparability of results coming from different laboratories responsible for monitoring releases into air.

Stack emissions into the atmosphere

- Capacity to accommodate 12 participants simultaneously.
- **Real matrices:** atmospheres generated from combustion gas (natural gas, light fuel-oil or biomass), with or without dust, that can be heated, moistened or spiked with various pollutants.

Testing bench

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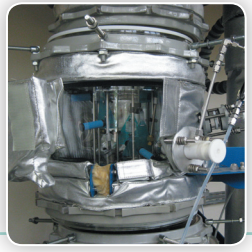
ILC in the testing bench:

- Evaluation of automatic methods (on-line): NO_x, CO, CO_2, O_2, CH_4, total COV, non-methane COV.
- Evaluation of manual methods (sampling): total dust, HCl, NH_3, SO_2, humidity.

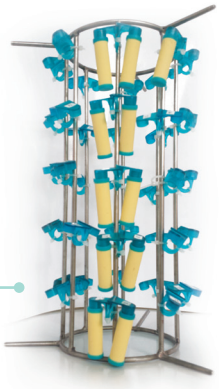
Analytical ILC:

- HCl, Hg, NH_3, SO_2, HF, HAP, metals,
- Gas and particle phase: absorption solution, filters, resins,... exposed to combustion gases produced in the testing bench.
- Dust by gravimetry ..... **NEW**

Indoor air



Exposure chamber



Rack for diffusive sampling supports

Analytical ILC (diffusive sampling supports):

- Formaldehyde and Benzene

- Preparation of testing materials in an exposure chamber to simulate a real matrix.
- Atmospheres generated in controlled environmental conditions.
- Exposure concentrations close to indoor air guide values.

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controlling risks for sustainable development

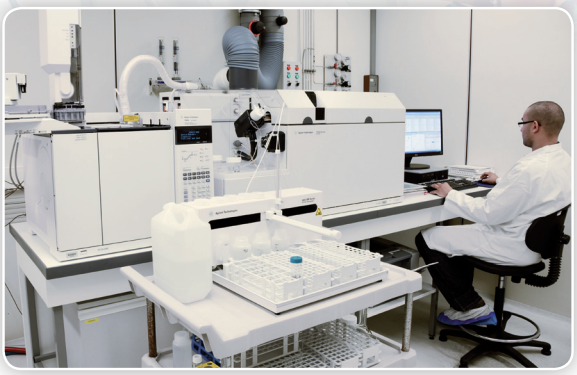
Air Inter-Laboratory Comparisons (ILC): sampling and analyses

Workplace air:

- Concentration levels between 5 and 100% of OEL (Occupational Exposure Levels)

Analytical ILC:

- Metals (Cd, Cr, Ni, Pb) – Mercury
- Inorganic acids (HF, HBr, HCl, H_3PO_4, HNO_3, H_2SO_4)
- BTEX (benzene, toluene, ethyl benzene, m-xylene)
- Acetaldehyde, formaldehyde
- Methanol ····· NEW



Analysis laboratory

Inter-laboratory Comparison - Programme 2019

Matrix	Programme 2019	Fee	Date
Stack Emission **Analyses**	**Dust by gravimetry** NEW	240 € BT	May 2019
	Mercury in permanganate medium (absorption solutions subjected to gaseous effluents)	598 € BT	May 2019
	Gaseous hydrochloric acid (absorption solution subjected to gaseous effluents)	598 € BT	May 2019
	Gaseous hydrofluoric acid (absorption solution subjected to gaseous effluents) **and particles** (filter and dust)	1.049 € BT	May 2019
	Gaseous metals (absorption solution subjected to gaseous effluents) **and particles** (filter and dust): As, Cd, Cr, Co, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	1.788 € BT	May 2019
	Polycyclic Aromatic Hydrocarbons (filter and dust): Benzo[a]anthracene, Benzo[k]fluoranthene, Benzo[b]fluoranthene, Benzo[a]pyrene, Dibenzo[a,h]anthracene, Benzo[g,h,i]perylene, Fluoranthene, Indeno[1,2,3-c,d]pyrene	816 € BT	May 2019
	Gaseous sulphur dioxide (absorption solution subjected to gaseous effluents)	598 € BT	May 2019
	Gaseous ammonia (absorption solution subjected to gaseous effluents)	598 € BT	May 2019
Stack Emission **Sampling**	**Evaluation of** O_2, NO_x, CO, COVT, CH_4, COVNM **automatic measurement methods** and **implementation of QAL 2 controls**	Consult us	June 2019
Workplace air **Analyses**	**Mercury** on Hydrar® tube	290 € BT	March 2019
	Metals (Cd, Cr, Ni, Pb) on quartz fibre filter	594 € BT	March & Sept. 2019
	Inorganic acids (HF, HBr, HCl, H_3PO_4, HNO_3, H_2SO_4) on quartz fibre filter	630 € BT	March & Sept. 2019
	BTEX (benzene, toluene, ethyl benzene, m-xylene) on activated carbon support	710 € BT	March & Sept. 2019
	Aldehydes (formaldehyde, acetaldehyde) on silica tubes coated with 2,4-dinitrophenylhydrazine	830 € BT	March & Sept. 2019
	Methanol (silica gel support) NEW	430 € BT	Sept. 2019
Indoor air **Analyses**	**Benzene** sampled on diffusive sampling tubes spiked by exposure to atmospheres generated in exposure chamber	1.100 € BT	Sept. 2019
	Formaldehyde sampled on diffusive sampling tubes spiked by exposure to atmospheres generated in exposure chamber	1.150 € BT	Oct. 2019

The documents relating to the test can be downloaded from the Ineris site under the tab: **https://cil.ineris.fr**

Ineris's accreditation for ILC organisation can be found at: **http://www.cofrac.fr** COFRAC Certificate n°1-2291.

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