



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 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.

ILC in the testing bench:

- Evaluation of automatic methods (on-line): NO_x, CO, CO₂, O₂, CH₄, total COV, non-methane COV.
- Evaluation of manual methods (sampling): total dust, HCl, NH₃, SO₂, humidity.



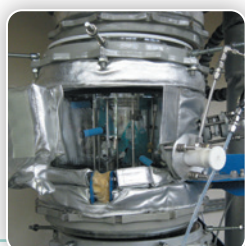
Testing bench



Analytical ILC:

- HCl, NH₃, SO₂, HF, HAP, metals,
- Gas and particle phase: absorption solution, filters, resins,... exposed to combustion gases produced in the testing bench.
- Dust by gravimetry*

Indoor air



Exposure chamber



Rack for diffusive sampling supports

Analytical ILC (diffusive sampling supports):

- Formaldehyde • BTEX (benzene, toluene*, ethylbenzene*, xylene*)
- 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.

* Not accredited parameters



INERIS

controlling risks
for sustainable development

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Workplace air:

- Concentration levels between 1 and 100% of OEL (French Occupational Exposure Levels)

Analytical ILC:

- Metals (Cd, Cr, Cu, Ni, Pb) – Mercury
- Inorganic acids (HF, HBr, HCl, H₃PO₄, HNO₃, H₂SO₄)
- BTEX (benzene, toluene, ethyl benzene, m-xylene)
- Acetaldehyde, formaldehyde
- Methanol - Ammonia - Nitrogen Chloride

Analysis
laboratory



Matrix	Programme	Fee	Date
Stack emission Analyses	Dust by gravimetry*	269 € BT	May
	Gaseous hydrochloric acid (absorption solution subjected to gaseous effluents)	649 € BT	May
	Gaseous hydrofluoric acid (absorption solution subjected to gaseous effluents) and particles (filter and dust)	1.140 € BT	May
	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	1.940 € BT	May
	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	887 € BT	May
	Gaseous sulphur dioxide (absorption solution subjected to gaseous effluents)	649 € BT	May
	Gaseous ammonia (absorption solution subjected to gaseous effluents)	649 € BT	May
Stack emission Sampling	Implementation of methods of HCl, NH₃, SO₂ and water vapor concentrations measurement	Consult us	June - July
Workplace air Analyses*	Ammonia on quartz filter	334 € BT	March
	Mercury on Hydrar® tube	334 € BT	March
	Metals (Cd, Cr, Cu, Ni, Pb) on quartz fibre filter	684 € BT	March & Sept.
	Inorganic acids (HF, HBr, HCl, H ₃ PO ₄ , HNO ₃ , H ₂ SO ₄) on quartz fibre filter	725 € BT	March & Sept.
	BTEX (benzene, toluene, ethyl benzene, m-xylene) on activated carbon support	818 € BT	March & Sept.
	Aldehydes (formaldehyde, acetaldehyde) on silica tubes coated with 2,4-dinitrophenylhydrazine	957 € BT	March & Sept.
	Methanol (silica gel support)	495 € BT	Sept.
Indoor air Analyses	Nitrogen trichloride on quartz filter	361 € BT	Sept.
	BTEX (benzene, toluene*, ethylbenzene*, xylene*) sampled on diffusive sampling tubes spiked by exposure to atmospheres generated in exposure chamber	1.365 € BT	April
	Formaldehyde sampled on diffusive sampling tubes spiked by exposure to atmospheres generated in exposure chamber	1.340 € BT	June
Ambient air Analyses*	PAH (Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[j]fluoranthene, Benzo[k]fluoranthene, Dibenzo[a,h]anthracene, Indeno[1,2,3-c,d]pyrene) on filters	1.749 € BT	Sept.

* Not accredited parameters

The documents relating to the test can be downloaded from the Ineris site under the tab:
<https://comparaisons-interlaboratoires.ineris.fr>

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

Contact :
prestations-ineris@ineris.fr