Norsk institutt for luftforskning
Norwegian Institute for Air Research

To the participants in
the laboratory intercomparisons within EMEP

Deres ref./*Your ref.*:	Vår ref./*Our ref.*:	Kjeller,
	KAP/O-7726-QC	September 2018

Laboratory intercomparisons within EMEP

Samples are prepared for both "The thirty-sixth intercomparison of analytical methods within EMEP" and "EMEP Analytical intercomparison of heavy metals in precipitation 2018". The samples have been sent as letter mail without special custom declaration. We hope this will not introduce any trouble, but if the samples do not appear within the following days, please inform kap@nilu.no or contact your post / custom office.

This year, we have chosen to update the concentration range of the expected values to reflect the concentrations reported within the EMEP measurement network. This means that for most of the sample types within the EMEP laboratory intercalibration expected values are lower than in previous years.

Reporting of results

NILU/CCC kindly ask the participants of the laboratory intercomparisons within EMEP to submit their results from Round 36; 2018 via EMEP's website: (http://www.nilu.no/projects/ccc/intercomparison/index.html) within **December 7th 2018**.

Submission of results is only possible via EMEPs homepage.
Before submission of results, please consider the following:

- Report numerical values and use only the units indicated in the data entry form.
- Please check unit of measurements and numerical values to avoid calculation and typing errors.
- For results below the detection limit of your laboratory's analytical method, please report your detection limit preceded by a less than symbol, such as <0.05.
- Blank samples; please report the instrument reading if the result is above your detection limit. If your analytical instrument reading is zero or a value below your detection limit, please report your detection limit as described above.
- C-samples; please read and follow the special instruction for the synthetic samples of nitrogen dioxide. The results are to be reported as the concentration of NO_2-N in µg/ml in the **10 times diluted** sample.

Shortly after submission, you will receive an automatically generated email confirming receipt of your results. This email contains the results you entered. Please check carefully for typing errors. If you do not receive a confirmation email, please contact Anne Hjellbrekke (agh@nilu.no) as we most likely have not received any results

Expected values will be published at the website shortly after the submission deadline.

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Samples distributed

☐ A. 5 synthetic samples (one blank included) for determination of sulphur dioxide. The samples consist of 0.3% H_2O_2 absorbing solution acidified with HCl containing different amounts of diluted H_2SO_4. Results should be reported as µg S/ml.

☐ B. 6 synthetic samples (two blanks included) for determination of SO_2 and HNO_3 on impregnated filters. The filters, Whatman 40, have been impregnated with 300 µl 1.0 M KOH/10% glycerol in methanol. Different amounts of H_2SO_4 solution and a nitrate salt solution have been added to the filters. Results should be reported as µg S/filter for SO_2 and µg N/filter for HNO_3.

☐ C. 4 synthetic samples for determination of NO_2. The samples consist of solutions of nitrite are **to be diluted according to the enclosed instruction**. Results should be reported as µg N/ml.

☐ G. 4 synthetic precipitation samples. The samples consist of deionized water, containing different amounts of sulphate, nitrate, ammonium, strong acid, magnesium, sodium, chloride, calcium and potassium. Results for K, Na, Mg, Cl, Ca should be reported in mg/l, SO_4 as mg S/l, NH_4 and NO_3 as mg N/l, pH in pH units and conductivity in µS/cm.

☐ H. 4 synthetic precipitation samples. The samples consist of 0.5% HNO_3 and different amounts of Cr, Ni, Cu, Zn, As, Cd and Pb. Results should be reported in µg/l.

☐ J. 6 synthetic samples (two blanks included) for determination of NH_3 by a wet chemical method on impregnated filters. The filteres, Whatman 40, have been impregnated with 300 µl 3% oxalic acid in methanol and different of an ammonium salt solution have been added to the filters. Results should be reported as µg N/filter.

The bottles and the Petri-dishes are labelled for sample identification.

Analysis

The samples should be analysed for the same constituents, and in the same way as the routine samples collected at your EMEP stations. In addition to these constituents, you may determine and report other ions in the precipitation samples. Only one result should be reported for each of the parameters.

Thank you for your co-operation.

Yours sincerely,

Katrine Aspmo Pfaffhuber
Scientist

kap@nilu.no

Encl.: Special instruction for the synthetic samples for nitrogen dioxide

Special instruction for the synthetic samples for nitrogen dioxide

Since the different laboratories in this intercomparison use different methods for absorbing nitrogen dioxide, samples C 1–4 distributed are to be diluted to match the laboratories own calibration solutions.

Therefore, 1 part of the sample solutions C 1–4 should be diluted with 9 parts of your calibration matrix before the analysis.

In this intercomparison, we want the results to be reported as the concentration of NO_2-N in µg/ml in the **10 times diluted** sample.