

Universität Stuttgart

**Institute for Sanitary
Engineering,
Water Quality and Solid Waste
Management**

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Date

Stuttgart, 23.01.2012

To the participants of AQS Baden-Württemberg

Proficiency test 3/12 TW A5 – Cations in drinking water -

Dear Sirs,

in September 2011 the execution of the above mentioned proficiency test (PT) round „Cations in drinking water” is planned.

Details about the PT round are enclosed. Please read them carefully.

The PT will be executed according to the recommendations of the German Federal Environment Agency from December 2003. These recommendations “for the execution of PTs for the measurement of chemical parameter and indicator parameter for the external quality control of drinking water laboratories” (Bundesgesundheitsblatt 46 **12**, 1094-1095) require, that drinking water laboratories must demonstrate their competence for all parameters they are accredited for or they want to be accredited for by a successful participation in a PT round within a cycle of 2-3 years.

If you are interested in participation, please complete, sign and return the enclosed application form.

Application deadline: 27th February 2012

You may also register for this PT round online via our website <http://www.aqsbw.de>.

Please consider our general terms and conditions of business for the execution of the PT, which can be downloaded from http://www.aqsbw.de/pdf/agb_en.pdf.

If we receive your application after the deadline we can not guarantee that participation will be possible.

The production of PT samples in this dimension is accompanied with high effort. You support us if you register early.

For formal reasons we confirm your application by sending a registration confirmation by fax. If you do not receive this registration confirmation, you are not registered.

If you have any questions, please do not hesitate to contact us:

AQS Baden-Württemberg, Bandtäle 2, 70569 Stuttgart, Germany

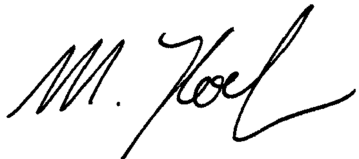
Phone: +49 711 685 65446

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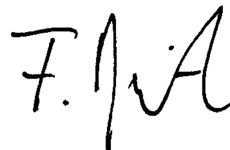
E-Mail: info@aqsbw.de

Contact: Heidi Sanwald, Dr. Frank Baumeister, Dr. Michael Koch

Best regards



Dr.-Ing. Michael Koch
Scientific director AQS



Dr.-Ing. Frank Baumeister
PT manager

Annex:

Details of the proficiency test exercise

Application form

**Details of the proficiency test round 3/12
TW A5 – Cations in drinking water – (January 2012)**

Parameters

- boron
- calcium
- magnesium
- mercury
- ammonium
- pH value

Matrix

Drinking water

Dates and deadlines

- Registration deadline: 27th February 2012

Please register for this PT preferably via our website (<http://www.aqsbw.de>) or with the enclosed registration form.

- Dispatch of the samples: 23rd April 2012
- **Deadline for submission of results: 14th May 2012, 24:00h in written form to the provider. Results submitted after the deadline will not be accepted.**

Sample dispatch

Samples will be sent by courier service.

Sample details

- 3 samples for the determination of boron, calcium, magnesium in 500-ml-plastic bottles.
- 3 samples for the determination of mercury in 250-ml-glass bottles with screw cap.
- 3 samples for the determination of ammonium in 500-ml-plastic bottles.
- 3 samples for the determination of the pH value in 100-ml-plastic bottles.

Permitted analytical methods

Participants are free to choose a suitable method.

Limit of quantification

The analytical methods must be able to achieve the following limits of quantification:

parameter	limit of quantification
boron	0,02 mg/l
calcium	5 mg/l
magnesium	2 mg/l
mercury	0,0002 mg/l
ammonium	0,1 mg/l
pH value	-

Execution of the analysis

The samples must be analysed in the own laboratory with own personnel and own equipment. Subcontracting of the analysis is not allowed.

Evaluation and assessment of the single values

The statistical evaluation will be executed according to DIN 38402 – A45 or ISO/TS 20612 “Interlaboratory comparison for proficiency testing of analytical chemistry laboratories” with the combined estimator Hampel/Q-method, a method of robust statistics. The assigned value x_a , derived from the weighings of the spiked samples and the matrix content^{1,2} will be used for the assessment of the single values preferably. Only if this is not possible, the Hampel estimator as robust mean value of the participants’ data will be used.

If possible, the standard deviation for proficiency assessment $\hat{\sigma}$ will be taken from the variance function for the calculation of the z_U -scores according to DIN 38402 - A45 (chapter 10.4) or ISO/TS 20612 respectively. $\hat{\sigma}$ will be limited for the parameters boron, calcium, magnesium, ammonium and mercury as follows:

- lower limit: 5 %
- upper limit: 25 %

and for the pH value:

- lower limit: 0,03 pH
- upper limit: 0,05 pH

A z-score is calculated for each measurement result derived from the assigned value x_a and the standard deviation for proficiency assessment:

$$z - score = \frac{result - x_a}{\hat{\sigma}}$$

The z-score will be modified to a z_U -score with a correction factor for proficiency assessment (as described in DIN 38402-A45 and ISO/TS 20612).

The tolerance limit is defined as $|z_U|=2$.

Overall assessment

There is no overall assessment of the proficiency test round, but the single parameters are assessed.

A parameter is assessed as successful, if more than half of the values are correctly determined (2 out of 3 values are within the tolerance limits).

Not successful are:

- 1) Values which are not determined (if the other samples of this parameters are analysed),
- 2) Values, which are indicated with “lower than limit of quantification”,
- 3) Values, which are subcontracted,
- 4) Values, which are submitted after the deadline of submission of results.

Participation fee

The participation fee will be 370 € plus transport costs.

If you apply to participate with at maximum two parameters, the fee is reduced to 240 €.

¹ Rienitz, O., Schiel, D., Güttler, B., Koch, M., Borchers, U.: A convenient and economic approach to achieve SI-traceable reference values to be used in drinking-water interlaboratory comparisons. *Accred Qual Assur* (2007) 12: 615-622.

² Koch, M., Baumeister, F.: Traceable reference values for routine drinking water proficiency testing: first experiences. *Accred Qual Assur* (2008) 13: 77-82.

**Registration for the
proficiency test round 3/12 TW A5
“Cations in drinking water”**

Our laboratory will take part in the proficiency test TW A5 – “cations in drinking water” – provided by AQS Baden-Württemberg. The participation fee of € 370,- (€ 240,- for maximum 2 parameters) plus transportation costs will be paid after receipt of the invoice.

I took note of the terms and conditions under http://www.aqsbw.de/pdf/agb_en.pdf.

For remarks of the organizer

For remarks of the organizer

Obligation

Our laboratory will perform the analyses in our own laboratory, with own personnel and own equipment.

Details of our laboratory:

	Type or print legibly
Name of the laboratory	
Street	
Postal code, City	
Delivery address (if different from the above address)	
Billing address (if different from the above address)	
Country	
Phone / FAX	
E-Mail	
VAT-ID (for participants outside Germany absolutely necessary)	
Contact Person	
We participate with at maximum 2 parameters	parameters: _____

date: _____

signature (legally binding): _____

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at Institute for Sanitary Engineering
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Germany