



Highlights TC Metrology in Chemistry

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Bucharest, Romania
29 – 30 May 2018



Agenda



- Technical Committee Metrology in Chemistry
 - 1. Support for Designated Institutes
 - 2. Comparison Elements in River Water
 - 3. Towards broad claim CMCs

TC Metrology in Chemistry



- 27 (-1) member countries
- 20 (-1) NMIs and 21 DIs have chemistry programs
- 4 technical subcommittees
(gas analysis, inorganic analysis, electrochemical analysis, organic and bio analysis)
- 1 strategy working group
(supplemented with a bio-metrology expert)
- 1 annual plenary meeting
(2018 in Vienna, 2019 in Brno)
- Joint TC-MC/TC-IR workshop
- 3 related EMNs (+ 2 in planning stage)



Support of Designated Institutes Status



- Support workshop in 2017:

- Progress so far:

Support Workshop for DIs 

- For designated institutes in the field of chemistry (biology) without recognized calibration and measurement capabilities five years after designation:
 - SYKE – Finnish Environment Institute
 - NIVA: Norwegian Institute for Water research
 - NILU: Norwegian Institute for Air Research
 - MIRS/...: Laboratory of the Institute for Olive culture
 - MIRS/...: Laboratory for Cements, Mortars and Ceramics
- Workshop aimed to understand needs and provide support towards international recognition of capabilities

4 11th EURAMET General Assembly - 15 - 18 May 2017



CMC accepted



CCQM.QM.K1



Laboratory for oil testing

CCQM.K146



Metrology in Chemistry

Support of Designated Institutes Outlook



- Support workshop planned for 2019:

follow-up:



adapted scope



Laboratory for oil testing

new:



+ Croatian DI

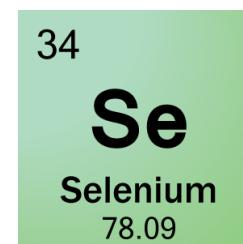
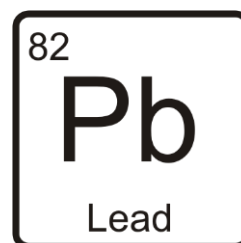
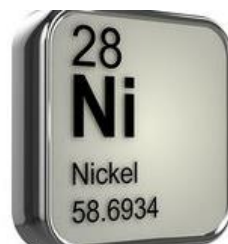
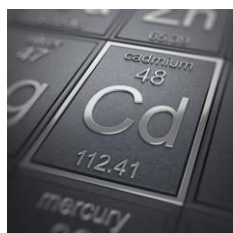
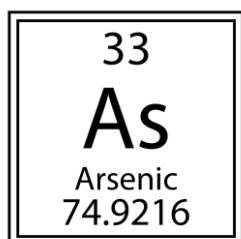
EURAMET.QM-S11



Metrology in
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Comparison Elements in River Water Protocol

- named EURAMET.QM-S11 and 1424
- coordinated by UME and IMBIH
- irradiated and stabilized river water
- provided in 100 ml PE bottles
- four mandatory and one optional measurand



optional

- levels 0.1 ng/g to 20 ng/g



Comparison Elements in River Water Participants

- EURAMET.QM-S11

EURAMET (10)
UME, IW, SYKE, PTB, BAM, EXHM/GCSL-EIM, FTMC, IJS, GUM, DMDM
SIM (5)
INTI, ISP, INM, LATU, INACAL
COOMET (2)
UNIIM, VINIFTRI
APMP (1)
RCM-LIPI

- NMIs/DIs

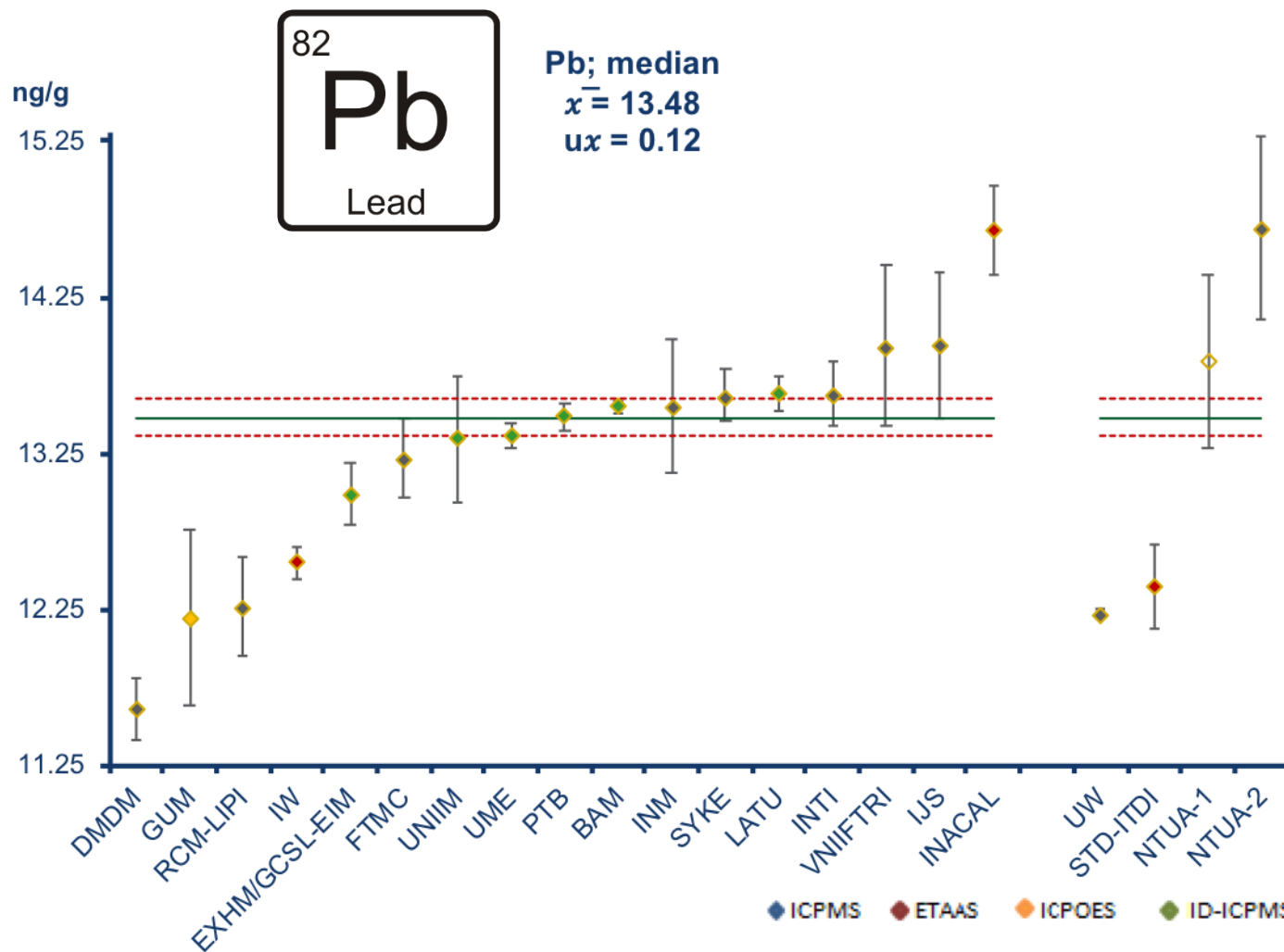
EURAMET 1424

EURAMET (3)
NTUA, UW, IH
SIM (1)
ISP
APMP (1)
STP-ITDI

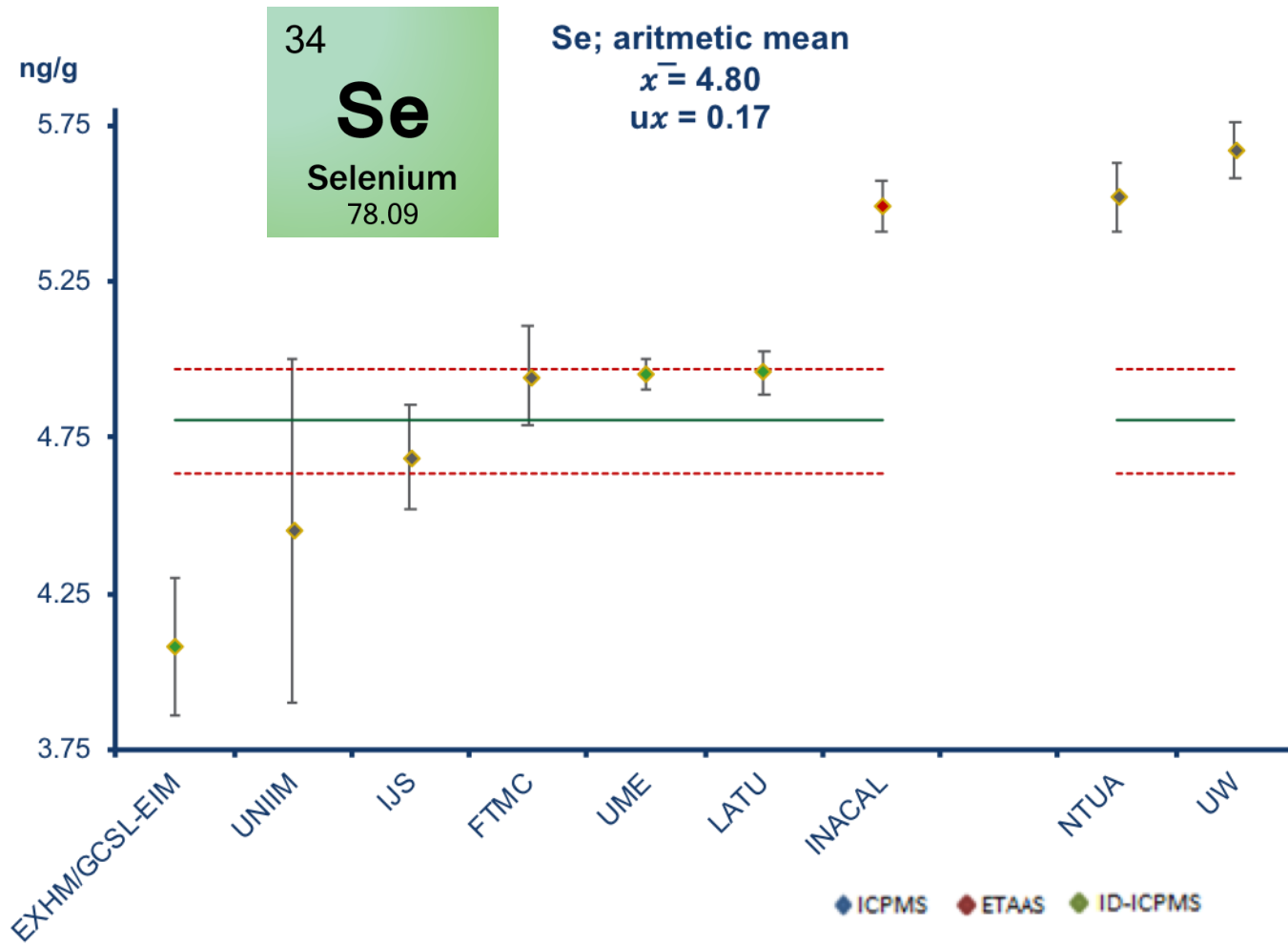
- less experienced NMIs
- european expert laboratories



Comparison Elements in River Water Results



Comparison Elements in River Water Results



Towards broad claim CMCs organic analysis

- Category 13 «sediments soils, ores and particulates»

NMI Service Identifier	Measurement Service Sub-Category	Matrix	Measurand		Dissemination Range of Measurement Capability			Range of Expanded Uncertainties as Disseminated				Range of Certified Values in Reference Materials			Range of Expanded Uncertainties for Certified Value				Mechanism(s) for Measurement Service Delivery	Comments
			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?		
Org-051	Sediments	sediment	PBDEs PAHs PCBs Low polarity pesticides (<500Mwt) Perfluorinated carboxylic acids (<C12) Perfluorinated sulphonates (<C12)																Calibration	Approved on 6 December 2017
Org-052	Soil	soil	PBDEs PAHs PCBs Low polarity pesticides (<500Mwt) Perfluorinated carboxylic acids (<C12) Perfluorinated sulphonates (<C12)																Calibration	Approved on 6 December 2017
Org-053	Sediments, Soils, Ores, and particulates	sludge	PBDEs PAHs PCBs Low polarity pesticides (<500Mwt) Perfluorinated carboxylic acids (<C12) Perfluorinated sulphonates (<C12)									17	112	µg/kg	2	8	µg/kg	No	Calibration and provision of CRM	Approved on 6 December 2017

→ # CMC reduced !



Towards broad claim CMCs inorganic analysis

- Category 10 «biological fluids»

NMI Service Identifier	Measurement Service Sub-Category	Matrix	Measurand		Dissemination Range of Measurement Capability			Range of Expanded Uncertainties as Disseminated					Range of Certified Values in Reference Materials			Range of Expanded Uncertainties for Certified Value					Mechanism(s) for Measurement Service Delivery	Uncertainty convention	Comments
			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Coverage factor	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Coverage factor	Is the expanded uncertainty a relative one?			
Inorg-050a	Blood serum	blood serum	cationic electrolytes: K, Ca, Mg, Li, Sr	Mass fraction	0.1	500	mg/kg	5	2	%	~2	Yes	19	123	mg/kg	2	14	mg/kg	~2	No	Calibration and ERM-DA250 and ERM-DA251 (Calcium, Potassium and Magnesium)	Uncertainty convention 2 for capability. Uncertainty convention 1 for CRMs	Approved on 28 June 2016
Inorg-050b	Blood serum	blood serum	essential elements: Fe, Zn, Cu, Se	Mass fraction	0.02	500	mg/kg	5	2	%	~2	Yes	0.064	0.658	mg/kg	0.003	0.033	mg/kg	~2	No	Calibration and ERM-DA120 (Copper, Selenium and Zinc)	Uncertainty convention 2 for capability. Uncertainty convention 1 for CRMs	Approved on 28 June 2016
Inorg-050c	Blood serum	blood serum	toxic elements: Ti, Cr, Pb, Cd, Ag, Sb, Sn, Hg, Mo, V, Ba	Mass fraction								Yes								Calibration	Uncertainty convention 2	Approved on 28 June 2016	

toxic elements: Ti, Cr, Pb, Cd, Ag, Sb, Sn, Hg, Mo, V, Ba

Mass fraction

→ # CMC reduced !



Thank you



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