STATUS REPORT ON CCQM OR RMO COMPARISON

1. CCQM Section/Field: Organic Analysis Working Group

2. CCQM Ref No (to be completed by the BIPM): **CCQM-K131**

3. Type of comparison: CCQM [x] RMO [ ]
Key [x] Supplementary [ ] Pilot study [ ]

4. Subject area: 3.1 Organic Solutions (PAHs)

5. Participating institutes (*and countries*):
TBA

[ ] Bilateral

6. Pilot laboratory: National Institute of Standards and Technology (NIST)

7. Measurand, unit and nominal value(s): mass fraction (ng/g) of benz[*a*]anthracene and benzo[*a*]pyrene, which represent a four-ring *cata*-condensed polycyclic aromatic hydrocarbons (PAHs) of molecular mass 228 Da and a five-ring *peri*-condensed PAH of molecular mass 252 Da. Naphthalene (two-ring *cata*-condensed PAH of molecular mass 128 g/mol) is an "optional" measurand for laboratories wanting to make claims for volatile organic compounds in an organic solution.

8. Description: **CCQM-K131 Low-Polarity Analytes in a Multicomponent Organic Solution: Polycyclic Aromatic Hydrocarbons (PAHs) in Acetonitrile**

CCQM-P31a "PAHs in Solution" was conducted in 2004 followed by a key comparison, CCQM-K38 PAHs in Solution in 2005. In both studies five representative PAHs were measured. Since these studies were conducted over 10 years ago, the OAWG has requested that another study be conducted for determination of nonpolar organic compounds in solution. CCQM-K131 will be conducted in parallel with K95.1 "Low-Polarity Analytes in a Botanical Matrix: Polycyclic Aromatic Hydrocarbons (PAHs) in Tea" to minimize the duplication of effort between these two studies involving PAH measurements. NIST has produced a number of PAHs in acetonitrile solution CRMs over the past 30 years each containing the 16 PAHs identified as priority pollutants by the U.S. Environmental Protection Agency. The most recent in this series is SRM 1647f Priority Pollutant Polycyclic Aromatic Hydrocarbons in Acetonitrile issued in 2014. NIST has available a number of previously prepared and ampouled solutions that were used in the certification of these SRMs. One of these ampouled solution materials would serve as the study material for CCQM-K131. The study material would be 1.2 mL of acetonitrile solution of the 16 PAHs in a sealed amber ampoule. Participants are requested to report a single estimate of the mass fraction (µg/kg) for the two target PAHs based on measurements for one subsample from each of three ampoules of the solution (i.e., three independent replicates). Participants may use either gas chromatography (GC) or liquid chromatography (LC). An isotope dilution quantification approach may be used, but is not required for this study. Other approaches involving internal or external standards are acceptable, and the methods should represent the way the NMI delivers this measurement service. K131 will demonstrate the following measurement capabilities: (1) value assignment of primary reference standards (if in-house purity assessment carried out); (2) value assignment of single and/or multi-component calibration solutions; and (3) separation and quantification using GC or LC. This study will demonstrate a laboratory's capabilities in determining mass fraction of organic compounds, with molecular mass of 100 Da to 500 Da and having polarity –log Kow < -2, in a multicomponent solution ranging from 100 µg/kg to 100 mg/kg.

9. Progress: *(Please note date and tick appropriate box to indicate current status)*

Date	Status	Pilot	Supplementary	Key
4/2014	Proposed to CCQM	[ ]	[ ]	[X]
	Accepted and registered	[ ]	[ ]	[ ]
4/2015	Protocol submitted to CCQM	[ ]	[ ]	[X]

Completed copy to be forwarded to a) CCQM Executive Secretary, b) relevant Key Comparison WG Chairman and c) Regional coordinator as appropriate

7/2015	Protocol agreed			X
	Measurements in progress			
	Measurements completed			
	Report in progress		Draft A	Draft A
			Draft B	Draft B
	Report submitted to CCQM			
	Results approved			
	Approved for Equivalence			
	Progression to Key Comparison			
	Abandoned			

Comments:

Publication reference:

10. Measurement start date: September 2015	11. Expected measurement completion date: December 15, 2015

12. Contact person's name: Stephen A. Wise
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13. Contact Person's signature:	14. Date: July 21, 2015