Chemical Metrology Projects

Supporting national healthcare and food safety programmes

Comparison Services for Organic Analytes provided to NMIs/DIs

Supporting NMI Measurement Services for Food Safety

BIPM coordinates CCQM comparisons for NMIs/DIs on organic primary calibrators, principally in the field of food contaminants

BIPM coordinated Pesticide Calibrant Comparisons:

Pesticides and veterinary drugs residue monitoring is required to guarantee food safety and enforce legislation.

Organic Primary Reference Materials
CCQM-K148.c (MW 500-1000 g/mol) (2024)
CCQM-K148.a1. (Non polar) (2024/25)

Organic Calibration Solutions
CCQM-K78.a.1.c (aqueous) (2025/26)
CCQM-K78.b.1 (non-polar)(2026/27)

BIPM coordinated Mycotoxin Calibrant Comparisons:

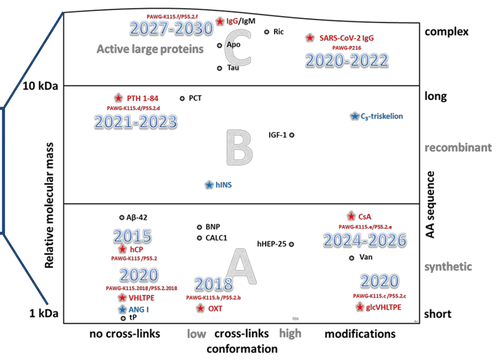
Mycotoxin analysis is required to reduce exposure of human population. Worldwide 25 % of agricultural commodities are contaminated with mycotoxins.

CCQM-K154.a Zearalenone (2018/19)
CCQM-K154.b Aflatoxin B_1 (2020/21)
CCQM-K154.c Deoxynivalenol (2021/22)
CCQM-K154.d Patulin (2022/23)
CCQM-K154.e Ochratoxin A (2023/24)

Supporting NMI Measurement Services for Laboratory Medicine

BIPM coordinates CCQM comparisons for NMIs/DIs on peptide primary reference material value assignment, principally in the field of diagnostic biomarkers

BIPM Key and pilot study comparisons within the CCQM Protein Analysis Working group



BIPM coordinated Peptide Calibrator Comparisons:

CCQM-K115.e (2024/26)

Antibody Immunoglobulin G (IgG, 149 kDa) as follow-up of CCQM-P216 on SARS-CoV-2 antibody to underpin and improve accuracy of antibody measurements for identification of current and past infection or identify vaccination state.

CCQM-K115.d (2024/25)

Parathyroid Hormone (1-84) (PTH(1-84), 9.4 kDa) is an 84 amino acid peptide hormone. It is critical to the assessment of patients with hypo- or hyper-parathyroidism.

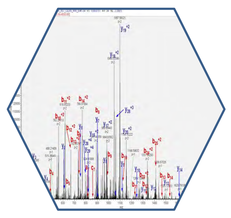
CCQM-K115.a.2 (2026/27)

Cyclosporin A applied as an immunosuppressant drug and controlled within a therapeutic range

Knowledge Transfer Services

e-Learning: Laboratory Medicine Reference Measurement Capabilities

e-Learning training course for NMIs/DIs starting to develop peptide and protein purity assignment capabilities. Supporting programmes to mentor NMI/DI scientists coordinating peptide calibrant standard comparisons for the first time.



Knowledge transfer: Technical activities at the BIPM will focus on primary calibrators and providing appropriate on-line training modules

Applying knowledge: Fully characterized primary calibrator material will be provided by the BIPM to NMIs/DIs to apply the techniques in the NMI/DI laboratories

Demonstration of competence: Report on material assignments and trouble-shooting on-line session

e-Learning: Pesticides and Veterinary Drug Residues in Food Reference Systems

e-Learning training course for NMIs/DIs starting to establish pesticide and veterinary drug residue purity assignment capabilities to support food safety reference systems.

Reference Information Services

Reference data for Organic Standards

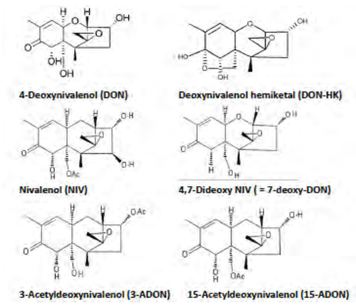
Rapport BIPM-2021/01

[BIPM PEG-02] - Purity Evaluation Guideline: Aflatoxin B_1

Authors:
Steven Westwood, Ralf Josephs, Gustavo Martos, Tiphaine Choteau, Xiaomin Li, Xiuqin Li, Zhen Guo, Xianjiang Li, Bruno Garrido, Ilker Ün

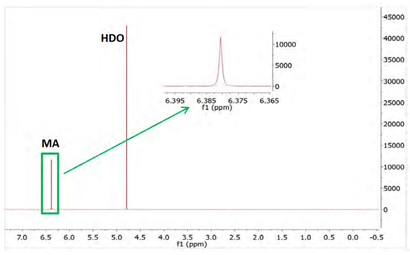
BIPM publish Purity Evaluation Guidelines for pure Organic Standard materials and Calibrant Assessment Guides for calibration solutions. Mycotoxins have currently been covered with planned extension to tetracyclines and multicomponent pesticide solutions.

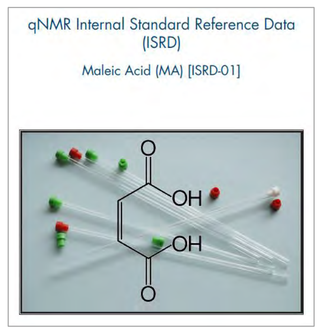
The Guidelines provide a valuable resource to NMIs producing reference materials, with analytical performance of methods described and impurity profiles published.



qNMR Internal Standard data

BIPM provides reference data on a range of compounds that can be employed as internal reference standards for quantitative NMR (qNMR) value assignment of pure organic materials.





The documents are a valuable resource for NMIs value assigning organic primary reference materials with qNMR techniques.