QFCS

Quality in Food Chemistry Scheme

Scheme Description

LGC
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Issue: 46 Issue date: Sept 2024

Record of issue status and modifications

ISSUE	ISSUE DATE	DETAILS	AUTHORISED BY
38	January 2023	Removed clarification for 818 Samples 801 and 811 are now accredited Increase sample size for sample 771 and 772	S. Xystouris Adele Collins L. Fielding
39	April 2023	Amended 781 sample size to 100g and addition of viscosity to samples 783. Added sample 887, 888.	L. Fielding
40	May 2023	Amendment to allergen samples in include A and B in the sample name.	L. Fielding
41	Sept 2023	Sample 801 SDPA updated for 5% SDPA for Glucose and fructose Added new samples 889-901 Removed milk from 854 ï participants would be able to report presence & absence New analytes added to 777 and 836-841 Format of sample 850 updated Qty updated for 857 Sample 800 and 842 removed Specified the format to powdered matrix for 830. Increased 783 sample size to 150g Specified the units for total acidity to % acetic acid for 776, 783, 793, 802 Amended 794 mycotoxins in spices to be the spiked version Sample 812 marked as óAccredited wi scope of UKAS accreditationô.	S.Xystouris L. Fielding N. Mason
42	Oct 2023	Amendment of the analyte name and DPs for 857 and 868 Specified the range for 799, 808, 809, 851, 852, 853, 854 Specified food product range for sample 900	S Xystouris
43	November 2023	Samples 879 and 861 increase to 300g. Brix added to sample 894 861 bulk density, bulk index and tapped density added. 870. untapped density removed.	L.Fielding
44	March 2024	Specified a range for 780 and 796. Samples 781, 851, 852 and soya in 853 now accredited.	A Collins
45	March 2024	Added glufosinate in sample 837	S. Xystouris
46	Sept 2024	Cosmetic changes to layout for 778 Changes to the format of 825 Addition of Nickel in 780, 784 Ranges specified for 890 and 803 Changed units, DPs and format 901 Changed the name of sample 870 and specified the matrix (paprika) Samples 795, 860, 887, 888, 873, 847, 859 removed 779 ï blank removed. 781, samples size adjusted. Clarified units for samples 771, 776, 782, 806, 830, 864. Sample 889 amended (sample name and analytes) Specified almond milk in the sample name, for sample 853 SDPA updated for TPC in 796 SDPA updated to 25% for samples 779, 794, 804, 845, 867 & 890 New samples 902 ï 912 Specified SDPA for 805 to 20% of the AV Added N-acetyl-L-methionine in 823Added Volatile sulphur compound content in 861 Added vanillic acid, para Hydroxy Benzoic acid, para Hydroxy Benzaldehyde in 892, amended the units from mg/kg to mg/g and the DPs from 1 to 3 806: amend docosapentaenoic (DPA)ô to Docosatetraenoic (DPA)ô.	R. Connolly S. Xystouris
47	Oct 2024	Corrected a statement for sample 912 (removed the reference to dyes)	S. Xystouris

Notes: Where this document has been translated, the English version shall remain the definitive version.

Scheme Aims and Organisation
The primary aim of the Quality in Food Chemistry Scheme (QFCS) is to enable laboratories performing the analysis of food products to monitor their performance and compare it with that of their peers. QFCS also aims to provide information to participants on technical issues and methodologies relating to the chemical examination of foods.

The QFCS scheme year operates from January to December. Further information about QFCS, including test material availability, round despatch dates and reporting deadlines, are available on the current QFCS application form.

Test Materials
Details of test materials available in QFCS are given in Appendix A. The test parameters are continually reviewed to ensure they meet the needs of current laboratory testing and regulatory requirements.

Test material batches are tested for homogeneity for at least one test parameter where deemed appropriate. Details of homogeneity tests performed and results are given in the QFCS Scheme Reports.

Some aspects of the scheme, such as test material production, homogeneity testing and stability assessment, can from time to time be subcontracted. When subcontracting occurs, it is placed with a competent subcontractor and LGC is responsible for this work. The planning of the scheme, the evaluation of performance and the authorisation of the final report will never be subcontracted.

Statistical Analysis
Information on the statistics used in QFCS can be found in the General Protocol and in the Scheme Report. Methods for determining assigned values and the values for SDPA used for individual samples are given in Appendix A.

Methods
Methods are listed in PORTAL. Please select the most appropriate method from the list. If none of the methods are appropriate, then please report your method as óOtherô PORTAL.

Results and Reports
QFCS results are returned through our electronic reporting software, PORTAL, full instructions for which are provided by email.

QFCS reports will be available on the website within 10 working days of round closure. Participants will be emailed a link to the report when it is available.

APPENDIX A - Description of abbreviations used

Assigned Value (AV)
The assigned value may be derived in the following ways:

- From the robust mean (median) of participant results (RMean). This is the median of participant results after the removal of test results that are inappropriate for statistical evaluation, e.g. miscalculations, transpositions and other gross errors. Generally, the assigned value will be set using results from all methods, unless the measurement is considered method-dependant, in which case the assigned value will be set by method as illustrated in the report tables.
  For some analytes, where there is a recognised reference method for that type of measurement, this may be used as the assigned value for a particular analyte i.e. it would be applied to results obtained by any method.

  Traceability: Assigned values which are derived from the participant results, or a sub-set of the results are not traceable to an international measurement standard. The uncertainty of assigned values derived in this way is estimated from the participant results, according to ISO 13528.

- From a formulation value (Formulation). This denotes the use of an assigned value derived from sample preparation details, where known and exact quantities of analyte have been used to prepare the sample.

  Traceability: Assigned values calculated from the formulation of the test sample are traceable, via an unbroken metrological traceability chain, to an international measurement standard. The measurement uncertainty of the assigned value is calculated using the contributions from each calibration in the traceability chain.

- From a qualitative formulation (Qual Form). This applies to qualitative tests where the assigned value is simply based on the presence/absence of the analyte in the test material.

  Traceability: Assigned values calculated from the qualitative formulation of the test sample are traceable to a certified reference standard or a microbiological reference strain.

- From expert labs (Expert). The assigned value for the analy

  Traceability: Assigned values provided by an international measurement to labor standard, according to the laboratory and the method used. The uncertainty of measurement for an assigned value produced in this way will be provided by the laboratory undertaking the analysis. Details of traceability and the associated uncertainty will be provided in the report for the scheme/round.

Range
This indicates the concentration range at which the analyte may be present in the test material.

SDPA
SDPA represents the standard deviation for proficiency assessment which is used to assess participant performance for the measurement of each analyte. This may be a fixed value (as stated), a percentage (%) of the assigned value or based on the robust standard deviation of the participant measurement results, either across all methods or by method depending on whether the measurement made is method dependent (see assigned value).

Units
This indicates the units used for the assessment of data. These are the units in which participants should report their results. For some analytes in some schemes participants may have a choice of which units to report their results, however, the units stipulated in this scheme description are the default units to which any results reported using allowable alternative results will be converted to.

DP
This indicates the number of decimal places to which participants should report their measurement results.

Sample PT-FC-760 **Analysis of preservatives**
Supplied as 100ml liquid test material

Analyte	Method	Range	AV	SDPA	Units	DP
Sorbic acid	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
Benzoic acid	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
Sulfur dioxide	Distillation	All	Formulation	Robust SD	mg/L	1

Sample PT-FC-761 **Analysis of sweeteners**
Supplied as 100ml liquid test material

Analyte	Method	Range	AV	SDPA	Units	DP
Acesulfame K	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
Aspartame	HPLC	All	Formulation	10% of AV (min 5ppm)	mg/L	1
Saccharin	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
Sucralose	HPLC	All	Formulation	Robust SD	mg/L	1

Sample PT-FC-762 **Analysis of food colours**
Supplied as 100ml liquid test material

Analyte	Method	Range	AV	SDPA	Units	DP
CAS 2611-82-7 Ponceau 4R	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 3567-69-9 Carmoisine	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 2783-94-0 Sunset yellow	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 860-22-0 Indigo carmine***	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1

Sample PT-FC-763 **Analysis of food colours**
Supplied as 100ml liquid test material

Analyte	Method	Range	AV	SDPA	Units	DP
CAS 25956-17-6 Allura red	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 1934-21-0 Tartrazine	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 8004-92-0 Quinoline yellow	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1
CAS 3844-45-9 Brilliant blue	HPLC	All	Formulation	5% of AV (min 5ppm)	mg/L	1