

# Statement of measurement



4005

## Allergen reference material - Skimmed milk powder Reference Material LGC7421

### Assessed Values

Property	Content g/100 g	Uncertainty <sup>3</sup> g/100 g	$k^4$
Nitrogen <sup>1</sup>	5.40	0.17	2.00
Water <sup>2</sup>	4.22	0.40	2.00

#### Notes:

1. Determined by an automated Dumas procedure. See later section for metrological traceability.
2. Determined by oven Karl Fischer titration. See later section for metrological traceability.
3. The quoted uncertainty is the half-width of the expanded uncertainty interval calculated using a coverage factor <sup>4</sup>, which gives a level of confidence of approximately 95 %.
4. Coverage factor.

Date of Issue: December 2019

Updated: September 2020

Signed: \_\_\_\_\_

Gill Holcombe (Mrs)

for the Government Chemist



## Material Sourcing and Preparation

The raw material was sourced by the University of Manchester from a reputable supplier to minimise the risk of contamination, and was described as organic skimmed milk powder, produced in Austria from Austrian or EU pasteurised, skimmed milk.

The skimmed milk powder was packaged as received without further processing by combining and mixing before weighing in  $(1.1 \pm 0.1)$  g portions into amber glass vials. The vials were closed under argon with a rubber stopper and a crimp cap. Each unit was sealed inside a metallised sachet to minimise changes in water content. 550 units were packaged and stored at  $(5 \pm 4)$  °C.

## Homogeneity Assessment

Homogeneity was assessed for nitrogen and water content. The procedure used is outlined in the section entitled 'Analytical Methods Used'. For the water determination, fifteen units were analysed in triplicate over three runs using a randomised block design. For the nitrogen determination, three samples were analysed in duplicate on three different days, meaning nine samples were analysed in total. For both analytes, the homogeneity of the material was considered fit for purpose.

## Stability

Deterioration is not expected over the lifetime of the material when stored under the recommended conditions; however LGC7421 will be subjected to testing under LGC's stability monitoring programme. Purchasers will be informed of any changes to the assessed values.

## Characterisation

This material has been prepared by LGC and characterised using the analytical methods described below.

## Analytical Methods Used

**Nitrogen** content was determined at LGC using an automated Dumas procedure using a rapid N cube nitrogen analyser (Elementar Analysensysteme GmbH) which is within LGC's scope of accreditation to ISO/IEC 17025 for testing. The instrument was calibrated using an EDTA Organic Analytical Standard (Elemental Microanalysis Ltd, Devon, UK) which has a certified value for nitrogen traceable to NIST SRM 143d.

**Water** content was determined by oven Karl Fischer (KF) coulometry using a Metrohm 774 oven sample processor and 831 KF coulometer. This method is within LGC's scope of accreditation to ISO/IEC 17025 for calibration.

LGC7421 was also characterised at the University of Manchester by a combination of advanced proteomic techniques including gel electrophoresis, immune-based analysis and mass spectrometry, confirming the presence of the relevant allergen molecules.

## Intended Use

The material is intended for use in (a) method development: e.g. in the generation of allergen kit calibrator extract solutions, (b) method validation: e.g. in the generation of external check calibrator extract solutions for allergen measurements (c) recovery estimates: to spike food matrices either by way of an extract, but preferably by addition of the raw material itself to assess allergen recovery in real life situations for which no other RMs are available.

LGC7421 can also be used in the quality control of methods for the determination of nitrogen and water in food ingredients and processed food products.

## **Metrological Traceability**

The values for nitrogen and water are traceable to the SI.

For nitrogen, the instrument was calibrated using an EDTA Organic Analytical Standard which has a certified value for nitrogen traceable to NIST SRM 143d (Gaithersburg, USA), which in turn is traceable to the SI.

The value for water content by coulometric Karl Fischer titration is traceable to the SI via (a) the use of coulometric titration equipment certified for performance using electrical test equipment calibrated and traceable to national and/or international standards (Certificate of Performance no. 1831001014106), (b) the use of certified reference materials for performance verification and quality control, and (c) the use of calibrated balances for mass determination.

## **Accreditation**

All values are within LGC's scope of accreditation to ISO 17034.

## **Instructions for Use**

The sample should be brought to room temperature before opening. Mix the contents of the vial using a clean spatula, being careful to avoid contamination. The sample portion should be removed and used rapidly to prevent changes in the water content. Open vials should not be stored for reuse.

The minimum recommended sample size is based on the amount of material taken for the homogeneity assessment and is shown below:

- 0.25 g for nitrogen
- 0.01 g for water

Use in allergen analysis should follow published guidance.

## **Storage Conditions**

The vial should be stored unopened at  $(5 \pm 4) ^\circ\text{C}$ .

## **Shelf Life**

This statement is valid for 6 months from the date of shipment provided the unit is stored unopened under the recommended conditions.

## **Acknowledgements**

The University of Manchester School of Biological Sciences, Division of Infection, Immunity and Respiratory Medicine, is thanked for providing the skimmed milk powder used to prepare this reference material and for carrying out proteomic characterisation.

## **Additional information**

This material is also available as a component in the LGC reference material kit 'LGC746-KT Allergen kit – Milk, Egg, Almond, Hazelnut and Walnut'.

## **Document Revision**

In September 2020, this document was updated to confirm the material is within LGC's scope of accreditation to ISO 17034 as a reference material producer.

Unit Number
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Date of Shipment
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## Legal Notice

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