JOINT RESEARCH CENTRE
Directorate F – Health, Consumers and Reference Materials

# CERTIFICATE OF ANALYSIS

## ERM®- BD151

| SKIMMED MILK POWDER | | |
|---|---|---|
| | Mass Fraction | |
| | Certified value [1,2] [g/kg] | Uncertainty [2,3] [g/kg] |
| Ca | 13.9 | 0.7 |
| Cl | 9.8 | 1.2 |
| K | 17.0 | 0.8 |
| Mg | 1.26 | 0.07 |
| Na | 4.19 | 0.23 |
| P | 11.0 | 0.6 |
| | Certified value [1,2] [mg/kg] | Uncertainty [2,3] [mg/kg] |
| Cd | 0.106 | 0.013 |
| Cu | 5.00 | 0.23 |
| Fe | 53 | 4 |
| Hg | 0.52 | 0.04 |
| I | 1.78 | 0.17 |
| Mn | 0.29 | 0.03 |
| Pb | 0.207 | 0.014 |
| Se | 0.19 | 0.04 |
| Zn | 44.9 | 2.3 |

1) Unweighted mean value of the means of accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination. The certified value and its uncertainty are traceable to the International System of Units (SI).

2) Certified mass fractions are corrected for the water content of the material (and expressed as dry mass), determined as described in the section "Instructions for use and intended use".

3) The uncertainty is expanded with a coverage factor $k$ = 2 corresponding to a level of confidence of about 95 % estimated in accordance with ISO/IEC Guide 98-3, Guide to the Expression of Uncertainty in Measurement (GUM:1995), ISO, 2008.

This certificate is valid for one year after purchase.
Sales date:
The minimum amount of sample to be used is 500 mg for Fe and 200 mg for all other elements.

Accepted as an ERM®, Geel, August 2013
Latest revision: January 2017

**Signed:**

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## NOTE

European Reference Material ERM®-BD151 was produced and certified under the responsibility of the of the European Commission's Joint Research Centre according to the principles laid down in the technical guidelines of the European Reference Materials® co-operation agreement between BAM-IRMM-LGC. Information on these guidelines is available on the internet (http://www.erm-crm.org).

## DESCRIPTION OF THE MATERIAL

The sample consists of about 20 g of skimmed milk powder in a brown glass bottle with a plastic neck insert and screw cap.

## ANALYTICAL METHODS USED FOR CERTIFICATION

Cold-Vapour Atomic Absorption Spectrometry
Electro-thermal Atomic Absorption Spectrometry
Flame Atomic Absorption Spectrometry
Hydride-Generation Atomic Absorption Spectrometry
High-pressure Liquid Chromatography Inductively Coupled Plasma Quadrupole Mass Spectrometry
Inductively Coupled Plasma Optical Emission Spectrometry
Inductively Coupled Plasma Quadrupole Mass Spectrometry
Ion chromatography
Isotope-Dilution Inductively Coupled Plasma Mass Spectrometry
Neutron Activation Analysis (radiochemical and k0)
Pyrolysis Atomic Absorption Spectrometry (Mercury)
Sector-Field Inductively Coupled Plasma Mass Spectrometry
Titrimetry

## PARTICIPANTS

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Umweltbundesamt GmbH, Wien (AT)
(Measurements performed under ISO/IEC 17025 accreditation; Wirtschaftsministerium 92714/499-IV/9/01)

## SAFETY INFORMATION

The usual laboratory safety precautions apply.

## INSTRUCTIONS FOR USE AND INTENDED USE

This material is intended for quality control and assessment of method performance. As any reference material, it can also be used for control charts or validation studies.

Certified mass fractions are corrected for the water content of the material (dry mass): To determine dry mass, accurately weigh an aliquot of at least 1 g on an analytical balance and dry the sample in an oven at atmospheric pressure, at 102 °C ± 1 °C, until constant mass is attained. Weighing of the samples for dry mass determination and weighing for the analysis shall be done at the same time to avoid differences due to possible take up of moisture by the material.

Dispose in accordance with good laboratory practice.

## STORAGE

The materials shall be stored at -20 °C ± 5 °C in the dark. Care shall be taken to avoid change of the moisture content once the units are open.

However, the European Commission cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially of opened samples.

## LEGAL NOTICE

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## NOTE

A detailed technical report is available https://crm.jrc.ec.europa.eu. A paper copy can be obtained from the Joint Research Centre Directorate F – Health, Consumers and Reference Materials on request.

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