JOINT RESEARCH CENTRE
Institute for Reference Materials and Measurements

CERTIFICATE OF ANALYSIS

ERM®-BB384

LYOPHILISED PORK MUSCLE				
Proximates and essential elements [1]	Mass Fraction			
	Certified value [5]		Uncertainty [6]	
Kjeldahl nitrogen [2]	14.2	g/100 g	0.4	g/100 g
Total fat [3]	8.99	g/100 g	0.20	g/100 g
Ash [4]	4.51	g/100 g	0.19	g/100 g
Na	1.86	mg/g	0.15	mg/g
Mg	1.03	mg/g	0.04	mg/g
Ca	0.164	mg/g	0.021	mg/g
P	8.7	mg/g	0.5	mg/g

1) Certified values are related to dry mass (according to procedure AOAC 950.46).

2) Measurand defined by different digestion procedures and subsequent quantification by Kjeldahl methods.

3) Measurand defined by different procedures for acid hydrolysis and solvent extraction and subsequent quantification by gravimetric methods.

4) Measurand defined by gravimetric methods based on ashing at 550 °C ± 25 °C.

5) Unweighted mean value of the means of 8 to 10 accepted sets of data, each set being obtained in a different laboratory with different methods of determination. The values are traceable to the International System of Units (SI).

6) Expanded uncertainty with a coverage factor $k = 2$, corresponding to a level of confidence of about 95 % estimated as defined in the ISO/IEC Guide 98-3:2008; Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995).

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 2 g each for dry mass, total fat and ash, 1 g each for sodium, magnesium, calcium and phosphorus and 0.5 g for Kjeldahl nitrogen.

Accepted as an ERM®, Geel, December 2009
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Signed: 

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NOTE

European Reference Material ERM®-BB384 was produced and certified under the responsibility of the Institute for Reference Materials and Measurements 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 SAMPLE

One set consists of two amber glass vials each containing about 18 g of lyophilised pork muscle filled under protective atmosphere (argon).

ANALYTICAL METHOD USED FOR CERTIFICATION

Kjeldahl nitrogen:	Kjeldahl methods
Total fat:	gravimetric methods based on acid hydrolysis and solvent extraction
Ash:	gravimetric methods based on ashing at 550 °C ± 25 °C
Sodium, magnesium and calcium:	ICP-OES, flame OES, flame AAS and flame photometric methods:
Phosphorus:	ICP-OES and spectrophotometric methods

PARTICIPANTS

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Labor Dr. Scheller GmbH, Augsburg, DE
(Measurements performed under ISO/IEC 17025 accreditation; DAP-PL-3642.00)

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(Measurements performed under ISO/IEC 17025 accreditation; DAP-PA-2055.00)

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(Measurements performed under ISO/IEC 17025 accreditation; DAP-PL-3295.02)

SAFETY INFORMATION

The usual laboratory safety precautions apply.

INSTRUCTIONS FOR USE AND INTENDED USE

The certified values are related to dry mass. Dry mass determination should be performed at least in duplicate.

For dry mass determination weigh accurately an aliquot of approximately 2 g on an analytical balance. The weighing should be performed immediately after opening of the vial to minimise potential water uptake or release by the pork muscle material. Drying shall be performed at 100 - 102 °C for 16 - 18 h (according to procedure AOAC 950.46).

This material is intended to be used for method performance control and validation purposes.

For assessing the method performance, the measured values of a CRM are compared with the certified values following a procedure described by Linsinger [Comparison of measurement result with the certified value, ERM Application Note 1, July 2005, www.erm-crm.org]. The procedure is described here in brief:

- Calculate the absolute difference between mean measured value and the certified value (Δ_m).
- Combine measurement uncertainty (u_{meas}) with the uncertainty of the certified value, where u_{CRM} is the above-stated expanded uncertainty of the certified value divided by the coverage factor of two (k = 2):

$$u_{\Delta} = \sqrt{u_{meas}^2 + u_{CRM}^2}$$

- Calculate the expanded uncertainty (U_{Δ}) from the combined uncertainty (u_{Δ}) using a coverage factor of two (k = 2), corresponding to a confidence level of approximately 95 %.
- If $\Delta_m \leq U_{\Delta}$ then there is no significant difference between the measurement result and the certified value at a confidence level of about 95 %.

Dispose in accordance with good laboratory practice.

STORAGE

The material should be stored at a temperature of 4 °C ± 3 °C.

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

LEGAL NOTICE

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NOTE

A detailed technical report is available on www.irmm.jrc.be. A paper copy can be obtained from the Joint Research Centre, Institute for Reference Materials and Measurements on request.

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