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

CERTIFICATE OF ANALYSIS

ERM®- BB185

BOVINE LIVER		
Mass Fraction		
	Certified value [2] [mg/kg]	Uncertainty [3] [mg/kg]
As [1]	0.0177	0.0021
Cd [1]	0.280	0.014
Cu	598	22
Mn	13.1	0.5
Pb [1]	0.0326	0.0021
Se	2.99	0.18
Zn	143	5

[1] As measured by inductively coupled plasma mass spectrometry (ICP-MS).

[2] Certified values are values that fulfil the highest standards of accuracy. The given values represent the 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 values are based on dry mass as determined by the procedure overleaf. The certified values and their uncertainties are traceable to the International System of Units (SI).

[3] The uncertainty is the expanded uncertainty of the certified value 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 400 mg.

Geel, December 2018
Latest revision: March 2019

Signed:

Dr Doris Florian
Head of Unit Reference Materials
European Commission, Joint Research Centre
Directorate F – Health, Consumers and Reference Materials
Retieseweg 111
B-2440 Geel, Belgium

DESCRIPTION OF THE MATERIAL

The CRM is available in a glass vial containing at least 10 g of dried liver powder each packed in an aluminised sachet.

ANALYTICAL METHODS USED FOR CERTIFICATION

Inductively Coupled Plasma Mass Spectrometry
Inductively Coupled Plasma Sector-Field Mass Spectrometry
Inductively Coupled Plasma Optical Emission Spectrometry
Isotope-Dilution Inductively Coupled Plasma Sector-Field Mass Spectrometry
Neutron Activation Analysis

PARTICIPANTS

ALS Scandinavia AB, Luleå, SE
(measurements performed under the scope of ISO/IEC 17025 accreditation; SWEDAC-2030)

Campden BRI (Chipping Campden) Ltd, UK
(measurements performed under the scope of ISO/IEC 17025 accreditation; UKAS 1079)

DTU Fødevareinstituttet (DTU Food), Søborg, DK
(measurements performed under the scope of ISO/IEC 17025 accreditation; DANAK No 350)

Laboratorio de Salud Pública de Alicante (LSPA), ES
(measurements performed under the scope of ISO/IEC 17025 accreditation; ENAC 148/LE370)

Sciensano, Tervuren, BE
(measurements performed under the scope of ISO/IEC 17025 accreditation; BELAC 172-TEST)

The Food and Environment Research Agency, York, UK
(measurements performed under ISO/IEC 17025 accreditation; UKAS 1642)

Institut "Jozef Stefan", Ljubljana, SI
(measurements performed under ISO/IEC 17025 accreditation; Slovenska Akreditacija LP-090)

SCK-CEN, Mol, BE
(measurements performed under the scope of ISO/IEC 17025 accreditation; BELAC 015-TEST)

Solvias, Kaiseraugst, CH

Umweltbundesamt GmbH, Wien, AT
(measurements under the scope of ISO/IEC 17025 accreditation Akkreditierung Austria ID 200)

VITO, Vlaamse Instelling voor Technologisch Onderzoek, Mol, BE
(measurements performed under the scope of ISO/IEC 17025 accreditation; BELAC 045-TEST)

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.

The units shall be shaken by turning upside down for at least 2 min before opening to ensure material re-homogenisation.

Dry mass determination shall be carried out on a separate portion of at least 1 g, by drying in an oven at 103 °C ± 2 °C until constant mass (separate weighing should not differ by more than 5 mg) 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.

Discard in accordance with good laboratory practice.

STORAGE

The material shall be stored at 18 ± 5 °C in the dark.

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

Neither the European Commission, its contractors nor any person acting on their behalf:

(a) make any warranty or representation, express or implied, that the use of any information, material, apparatus, method or process disclosed in this document does not infringe any privately owned intellectual property rights; or

(b) assume any liability with respect to, or for damages resulting from, the use of any information, material, apparatus, method or process disclosed in this document save for loss or damage arising solely and directly from the negligence of the Joint Research Centre of the European Commission.

NOTE

A detailed certification report is available at https://crm.jrc.ec.europa.eu/.

A paper copy is obtainable from the Joint Research Centre, Directorate F – Health, Consumers and Reference Materials on request.

European Commission – Joint Research Centre
Directorate F – Health, Consumers and Reference Materials
Retieseweg 111, B - 2440 Geel (Belgium)
Telephone: +32-(0)14-571.705 - Fax: +32-(0)14-590.406
Email: jrc-rm-distribution@ec.europa.eu