PRODUCT INFORMATION SHEET

Heavy Metals and Trace Elements in High-Fat Food

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	*DLA ptSU08 (2020): Heavy Metals and Trace Elements in high-fat Food*
Identifier / LOT	*RM 2020-SU08*
Expiry date	*April 2028*
Matrix	*Drink Powder*
Physical description	*Powder*
Packaging / weight	*Sealed foil pouche / 8 g*
Storage conditions	*room temperature, long term room temperature (dry and dark)*
Name and address manufacturer	***DLA - Proficiency Tests GmbH*** *Hauptstr. 80, 23845 Oering, Germany* *Tel. ++49-(0)4532-9183358, Fax. ++49(0)4102-9944976* *eMail. pt@dla-lvu.de, website. www.dla-lvu.de*

Composition of Material

Ingredients	**Amounts**
Cream Powder Ingredients: 100% spray-dried cream Nutrients per 100 g: Fat 75 g, carbohydrates 12,5 g, protein 9,4 g	78,2 g/100 g
Casein Powder, Organic Ingredients: 100% milk casein concentrate Nutrients per 100 g: Fat 78 g, carbohydrates 5 g, protein 2 g	21,8 g/100 g
As - Arsenic (standard solution)	0,21 mg/kg
Cd - Cadmium (standard solution)	0,081 mg/kg
Cr - Chromium (standard solution)	1,0 mg/kg
Hg - Mercury (standard solution)	0,080 mg/kg
Pb - Lead (standard solution)	0,21 mg/kg
Se - Selenium (standard solution)	0,40 mg/kg

Minimum Sample Size

A minimum sample size of 5 g is recommended for sample preparation.

The mixture homogeneity before bottling was examined 8-fold by determination of copper and lead by ICP/MS (DIN EN ISO 17294-2). The repeatability standard deviation was 1,5% and 11% and thus within the range of repeatability standard deviations of comparable methods (e.g. ASU §64 L 00.00-144).

The calculation of the repeatability standard deviations S_r of the participants was also used as an indicator of homogeneity. The coefficient of variation (CV_r) for all analytes ranges from 1,1 – 8,6%. Thus, they were similar to the repeatability standard deviations of the corresponding official methods (e.g. ASU §64 L 00.00-144).

Reference Values
All reference values were derived from the related PT round (for more details see final report).

Reference Values quantitative in mg/kg

Parameter	As - Arsenic	B - Boron	Ba - Barium
Numbers of results°	8	6	8
Number of outliers	-	0	-
Assigned Value (Xpt)	***0,230***	***0,681***	***0,949***
Robust standard deviation	0,0212	0,294	0,0708
Standard uncertainty	0,00937	0,150	0,0313
Target standard deviation σpt	0,0460	0,189	0,153
Target range	***0,138-0,322***	***0,302-1,06***	***0,643-1,26***

° without outliers

Parameter	Ca - Calcium	Cd - Cadmium	Cr - Chromium
Numbers of results°	8	7	8
Number of outliers	0	1	0
Assigned Value (Xpt)	***10300***	***0,0757***	***1,09***
Robust standard deviation	1110	0,00994	0,0797
Standard uncertainty	489	0,00470	0,0352
Target standard deviation σpt	782	0,0166	0,172
Target range	***8740-11900***	***0,0424-0,109***	***0,746-1,44***

° without outliers

Parameter	Cu - Copper	Fe - Iron	Hg - Mercury
Numbers of results°	7	7	8
Number of outliers	0	0	-
Assigned Value (Xpt)	***0,444***	***2,16***	***0,0701***
Robust standard deviation	0,0499	0,537	0,0136
Standard uncertainty	0,0236	0,254	0,00600
Target standard deviation σpt	0,0803	0,308	0,0154
Target range	***0,283-0,604***	***1,54-2,77***	***0,0393-0,101***

° without outliers

Parameter	K - Potassium	Mg - Magnesium	Mn - Manganese
Numbers of results°	7	8	8
Number of outliers	1	0	0
Assigned Value (Xpt)	***8800***	***735***	***0,321***
Robust standard deviation	528	51,1	0,0313
Standard uncertainty	250	22,6	0,0138
Target standard deviation σpt	359	43,6	0,0610
Target range	***8080-9510***	***648-822***	***0,199-0,443***

° without outliers

Parameter	Mo - Molybdenum	Na - Sodium	P - Phosphorus
Numbers of results°	8	8	5
Number of outliers	-	0	0
Assigned Value (Xpt)	***0,297***	***2040***	***7980***
Robust standard deviation	0,0542	188	995
Standard uncertainty	0,0239	83,0	556
Target standard deviation σpt	0,0571	104	597
Target range	***0,183-0,411***	***1840-2250***	***6790-9170***

° without outliers

Parameter	Pb - Lead	Se - Selenium	Zn - Zinc
Numbers of results°	8	9	9
Number of outliers	0	0	0
Assigned Value (Xpt)	***0,194***	***0,761***	***36,9***
Robust standard deviation	0,0191	0,180	4,70
Standard uncertainty	0,00845	0,0750	1,96
Target standard deviation σpt	0,0398	0,127	3,43
Target range	***0,115-0,274***	***0,507-1,01***	***30,1-43,8***

° without outliers

Intended Use

- for laboratory use only, no food!
- validation of analytical methods
- control sample for quality control charts
- test material for inter-laboratory comparisons
- no medical use

Storage Instructions and Handling Information

The material should be stored as stated on page 1. Before use of the material should be warmed up to room temperature. The content should be mixed thoroughly prior to subsampling (see minimum sample size above). The material should be weighed immediately after opening of the foil pouche/bottle and closed again afterwards in order to avoid uptake of moisture. Frequent freezing and thawing should be avoided as this can lead to changes in the properties of the material. The expiry date of this RM is based on the current knowledge and applies only for proper storage conditions in the originally closed foil pouche/bottle.

Safety Precautions

The usual laboratory safety precautions should be applied when working with the RM considering the type of ingredients, parameters and its concentration.

Data Source

The material was analyzed by 9 laboratories within the related proficiency test (PT). Different analytical methods have been used.

Various

The user must determine the suitability of this RM for its particular purpose. DLA makes no warranty of any kind, expressed or implied, other than its products meet all quality control standards set by DLA. We do not guarantee this product can be used for a special application.

approved (PT-Coordinator)	updated
Alexandra Scharf, PhD	Ulrike Vorreiter
signed A. Scharf	*signed U. Vorreiter*
6 August 2024	4 May 2026