PRODUCT INFORMATION SHEET

ALM Verification: Almond in Cookie-Matrix
5 Samples baked with Almonds
(levels: 2,0 / 10 / 20 / 50 / 100 mg/kg)

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	*DLA 16-2019 ALM-Verification: Almond in Cookie-Matrix, 5 Samples baked with Almonds*
Identifier / LOT	*RM 2019-16 Set*
Expiry date	*March 2027*
Matrix	*Cookies, see table*
Physical description	*Powder*
Packaging / weight	*Sealed foil pouche / 20 g*
Storage conditions	*2 - 10°C, long term < -18°C (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

PT-Sample series	**Level 0** **„blank“**	**Level 1** **2,0 mg/kg**	**Level 2** **10 mg/kg**	**Level 3** **20 mg/kg**	**Level 4** **50 mg/kg**	**Level 5** **100 mg/kg**
Ingredients	**g/100 g**	**g/100g**	**g/100g**	**g/100g**	**g/100g**	**g/100g**
Butter Cookies Ingredients: Wheat flour, sugar, butter, barley malt extract, skimmed milk powder, glucose, glucose syrup, raising agent ammonium carbonate, salt, emulsifier lecithin Nutrients per 100 g: Fat 12 g, carbohydrates 76 g, protein 7,1 g	100	>99,9	99,8	99,7	99,1	98,3
Cookies (baked 150°C, 30 min) Ingredients: Wheat flour, Sugar, butter, eggs, salt and mixture of raw almonds and further ingredients (maltodextrin, sodium sulfate, silicon dioxide)	-	0,034	0,17	0,34	0,86	1,72
Allergen-Contents	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
thereof Almonds: – as Almonds* – *with 20,5% protein***	-	**2,01** 0,412	**9,98** 2,05	**20,0** 4,10	**49,7** 10,2	**99,9** 20,5
Extended combined uncertainty (k=2) of almond content (= ± 13 %)		± 0,26	± 1,3	± 2,6	± 6,5	± 13

*Allergen contents as „total food“ as described in column ingredients according to gravimetric mixture
** Protein contents according to laboratory analysis of raw material (total nitrogen according to Kjeldahl with F=5,18 for almond protein)

Minimum Sample Size

A minimum sample size of 5 g is recommended for sample preparation.
The homogeneity tests were performed with sample sizes of 5 g (Microtracer analysis).
The mixture homogeneity before bottling was examined 8-fold by microtracer analysis. Homogeneity was sufficient with a probability of ≥ 25% (excellent mixture) and a HorRat value in the range of acceptance (0,3 to 1,3) (for more details see final report of PT).

Reference Values

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

Reference Values qualitative ELISA

	Level 0 „blank“	Level 1 2,0 mg/kg	Level 2 10 mg/kg	Level 3 (Action Level) 20 mg/kg	Level 4 50 mg/kg	Level 5 100 mg/kg
Number positive	2	8	10	10	10	10
Number negative	6	1	0	0	0	0
Percent positive	25	89	100	100	100	100
Percent negative	75	11	0	0	0	0
Consensus value	negative	positive	positive	positive	positive	positive
Spiking	negative	positive	positive	positive	positive	positive

Methods:

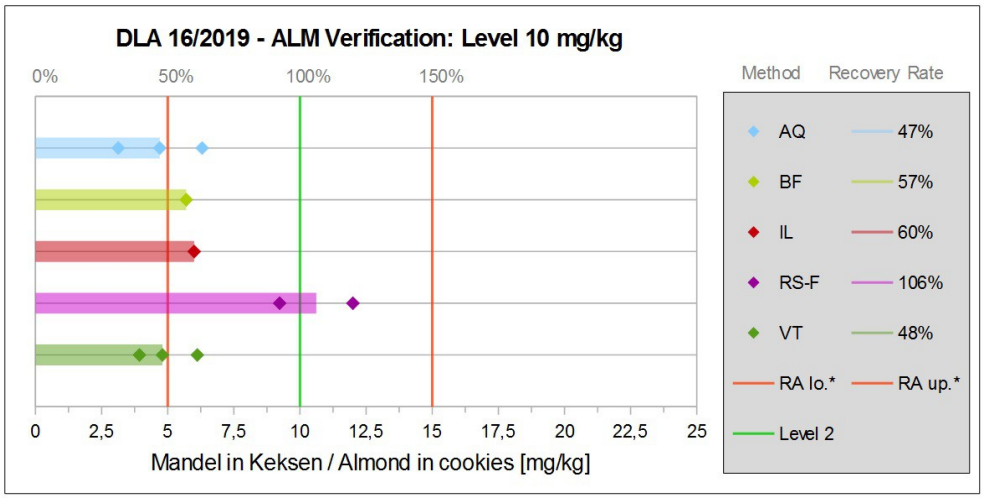
AQ = AgraQuant, RomerLabs
BF = MonoTrace ELISA, BioFront Technologies
IL = Immunolab
RS-F= Ridascreen® Fast, R-Biopharm
VT = Veratox, Neogen

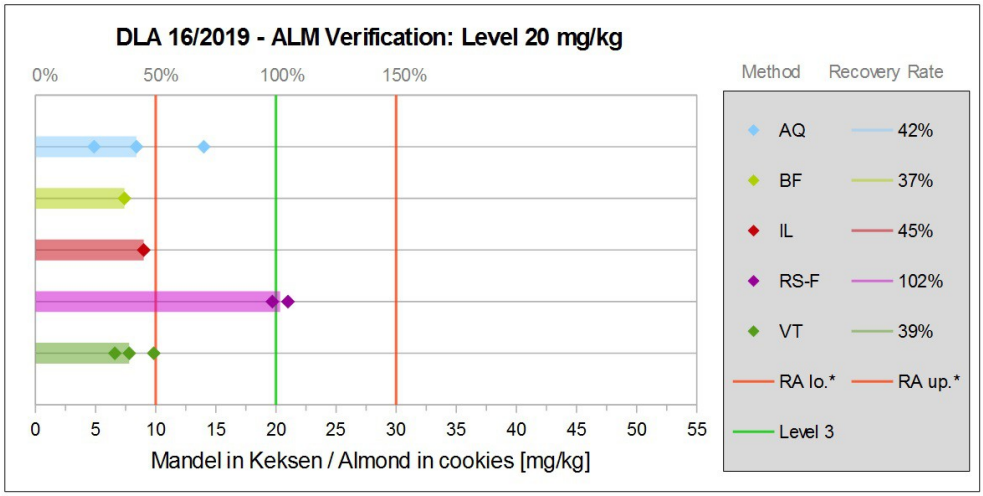
Reference Values quantitative in mg/kg ELISA

Parameter	Almond	
	Level 2 (10 mg/kg)	Level 3 (20 mg/kg)
	All methods*	All methods*
Numbers of results	8	8
Number of outliers	0	0
Assigned Value (Xpt)	***5,09***	***8,21***
Robust standard deviation	1,29	2,36
Standard uncertainty	0,570	1,04
Target standard deviation σpt	1,27	2,05
Target range	***2,54 – 7,63***	***4,10 – 12,3***

* Results of diverse ELISA Methods

Median of recovery rates: levels 2 – 4





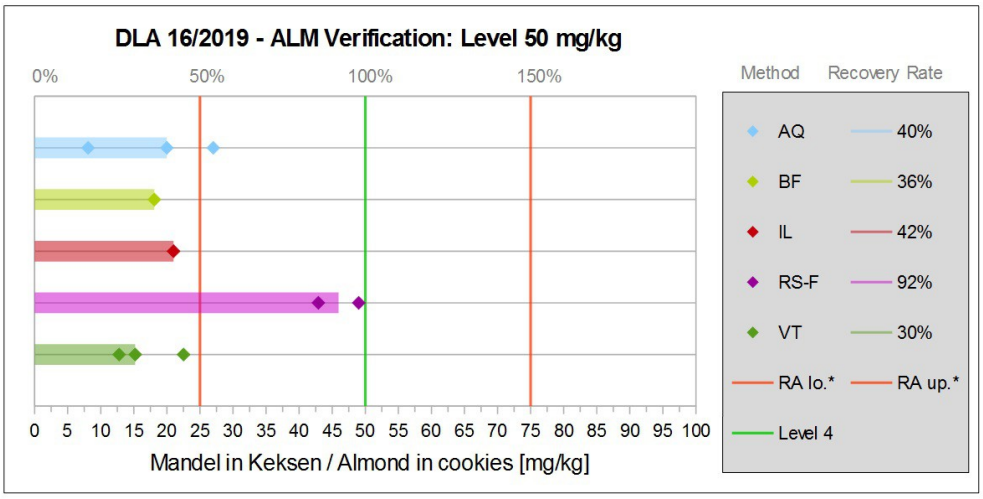


Abb./Fig. 1: Graphs of single results (Level 2-4) separated by methods with corresponding mean recovery rates, lower scale almond content in mg/kg, upper scale recovery rate in % with * range of acceptance from 50% - 150% (* range of acceptance: RA lower limit to RA upper limit)

Intended Use

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

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 11 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
Matthias Besler-Scharf, PhD	Ulrike Vorreiter
signed M. Besler-Scharf	*signed U. Vorreiter*
6 August 2024	2 April 2026