

PRODUCT INFORMATION SHEET

ALM Verification: Hazelnut in Chocolate-Matrix **5 Samples containing roasted Hazelnuts** *(levels: 0,50 / 2,5 / 5,0 / 12,5 / 25 mg/kg)*

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	DLA 16-2018 ALM-Verification: Hazelnut in Chocolate-Matrix 5 Samples containing roasted Hazelnuts (and a „blank sample“)
Identifier / LOT	RM 2018-16 Set
Expiry date	November 2026
Matrix	Dark chocolate
Physical description	solid
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 0,5 mg/kg	Level 2 2,5 mg/kg	Level 3 5,0 mg/kg	Level 4 12,5mg/kg	Level 5 25 mg/kg
Ingredients	g/100 g	g/100g	g/100g	g/100g	g/100g	g/100g
Dark Chocolate (cocoa: 70% at least) Ingredients: Cocoa mass, sugar, cocoa butter, emulsifier: soy lecith- in, vanilla extract Nutrients per 100 g: Fat 43 g, Carbohydrates 34 g, Pro- tein 9,6 g	100	>99,9	>99,9	>99,9	>99,9	>99,9
further Ingredients: Maltodextrin, Sodium Sulfate and Silicon dioxide	-	<0,1	<0,1	<0,1	<0,1	<0,1
Allergen-Contents	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
thereof roasted Hazelnuts:	-					
– as Hazelnuts*		0,504	2,53	5,04	12,5	25,2
– with 14,1% protein**		0,071	0,36	0,71	1,76	3,55
Extended combined uncertainty (k=2) of hazelnut content (= ± 11,0 %)		± 0,055	± 0,29	± 0,55	± 1,4	± 2,8

*Allergen contents as „total food“ as described in column ingredients according to gravimetric mixture

** Protein contents according to laboratory analysis of raw material: 14,1 ± 0,15 %, n=5 (total nitrogen according to Kjeldahl with F=5,30 for hazelnut protein)

Minimum Sample Size

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

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 „Null“	Level 1 0,50 mg/kg	Level 2 2,5 mg/kg	Level 3 (Action Level) 5,0 mg/kg	Level 4 12,5 mg/kg	Level 5 25 mg/kg
Number positive	0	4	6	7	7	7
Number negative	7	3	1	0	0	0
Percent positive	0	57	86	100	100	100
Percent negative	100	43	14	0	0	0
Consensus value	negative	none	positive	positive	positive	positive
Spiking	negative	positive	positive	positive	positive	positive

Methods:

AQ = AgraQuant, RomerLabs

BF = MonoTrace ELISA, BioFront Technologies

ES = ELISA-Systems

IL = Immunolab

NL = nutriLinia® Allergen-ELISA

RS-F = RidascreeN® Fast, R-Biopharm

Reference Values qualitative PCR

	Level 0 „Null“	Level 1 0,50 mg/kg	Level 2 2,5 mg/kg	Level 3 (Action Level) 5,0 mg/kg	Level 4 12,5 mg/kg	Level 5 25 mg/kg
Number positive	0	2	2	3	3	3
Number negative	3	1	1	0	0	0
Percent positive	0	67	67	100	100	100
Percent negative	100	33	33	0	0	0
Consensus value	negative	none	none	positive	positive	positive
Spiking	negative	positive	positive	positive	positive	positive

Methods:

GI = GEN-IAL First Allergen

SFA-ID = Sure Food Allergen ID, R-Biopharm / Congen

SFA = Sure Food Allergen, R-Biopharm / Congen

Reference Values quantitative in mg/kg ELISA

Parameter	Hazelnut	
	Level 3 (5 mg/kg)	Level 5 (25 mg/kg)
	All Methods*	All Methods*
Numbers of results	5	6
Number of outliers	0	0
Assigned Value (X_{pt})	4,00	15,9
Robust standard deviation	1,80	7,62
Standard uncertainty	1,00	3,89
Target standard deviation opt	1,00	3,98
Target range	2,00 - 6,00	7,97 - 23,9

* results of divers ELISA methods

Median of recovery rates: levels 2, 3 and 4

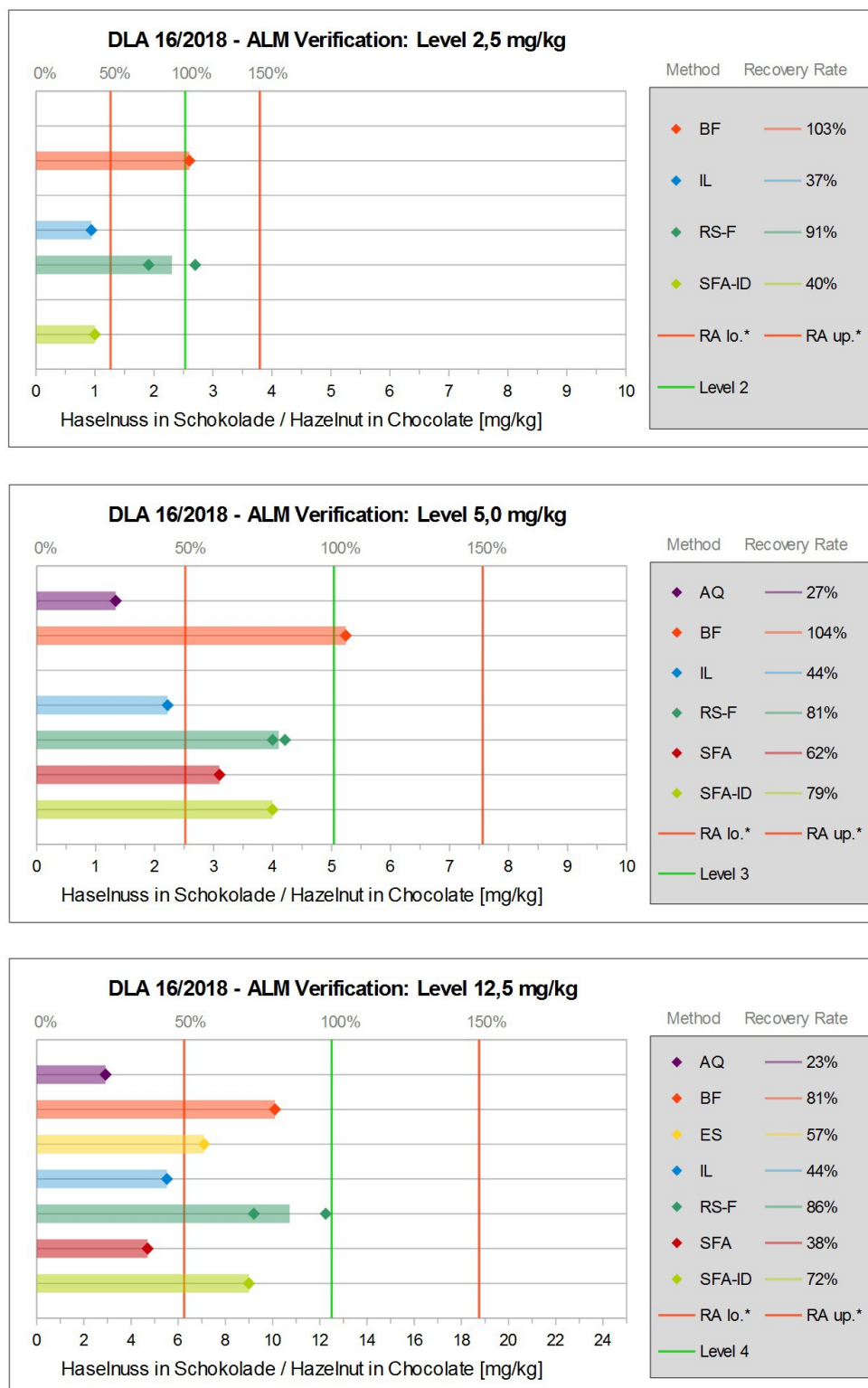


Abb./Fig. 2: Graphs of single results (Level 2-4) separated by methods with corresponding mean recovery rates, lower scale hazelnut content in mg/kg, upper scale recovery rate in % with * range of acceptance from 50% - 150% (* range of acceptance: RA lower limit to RA upper limit)

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 10 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.



Date: 3 December 2025

Ulrike Vorreiter
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