

PRODUCT INFORMATION SHEET

Celery (Leaves / Stem, Root and Seed), Cereals containing Gluten (Wheat or Rye and Barley or Oat), Lupin, Peanut and Sesame (white and black) (4 Samples qualitative - Detection of "Action Levels" included)

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	DLA ptALS3 (2025) Allergen Screening III - 4 Samples qualitative: Celery (Leaves / Stem, Root and Seed), Cereals containing Gluten (Wheat or Rye and Barley or Oat), Lupin, Peanut and Sesame (white and black) - Samples 1-4
Identifier / LOT	RM 2025-ALS3 Set
Expiry date	February 2027
Matrix	Allergens in simple matrix (see tables)
Physical description	Powder
Packaging / weight	Sealed foile poche / 20 g
Storage conditions	2-10°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

Assigned values and uncertainties of 2/3 and 1/6 "action levels":

The "action level" in mg/kg is calculated from the allergen protein reference dose per 100 g food portion (based on FAO/WHO 2022 and Vital 4.0 2024 (for more details see final report)). The contents of the allergenic items in the PT-samples 1-4 were gravimetrically adjusted to 2/3 and 1/6 of the "action levels" (s. Tab. 2).

Each assigned value, here the spiked allergen-contents, is afflicted with a standard uncertainty. As uncertainties the following factors were considered: gravimetric weighing, protein contents, homogeneity and stability of allergen protein.

All uncertainties were expressed in the form of their standard deviations and then added as variances. The square root from the sum of the total variances results in the combined uncertainty "Uc". Multiplied with the coverage factor k=2 the extended uncertainties of the assigned values " $U(X_{pt})$ " are obtained (for more details see final report).

For all parameters the extended combined uncertainties (k=2) of the "2/3 action levels" and "1/6 action levels" are in the range of $U(X_{pt}) = \pm 5-10 \%$.

Interpretation of 2/3 and 1/6 Action Level Detection

A positive detection of the 2/3 action level enables a reliable decision as to whether a measurement result is below the action level, even if the measurement uncertainty of the analytical method is about $\pm 50\%$.

The positive detection of the 1/6 action level can demonstrate the suitability of the applied method at lower values close to the LOQ or LOD.

Composition of Material

Ingredients	Samples 1 - 4
Rice flour, organic	74 - 76 %
Maltodextrin	24 - 26 %
Allergen-Premixes	0,01 - 0,04 %
<u>Ingredients:</u> Maltodextrin, Sodium sulfate, Silicon dioxide and Allergens (5% - 100% each)	

Added allergenic ingredients 2/3 and 1/6 values of the "action levels" are indicated as actually spiked total food item and calculated protein contents in mg/kg

Ingredients *	"Action Level"	Sample 1	Sample 2	Sample 3	Sample 4
Protein % (Kf = Kjeldahl factor)	Vital 4.0	[mg/kg]	[mg/kg]	[mg/kg]	[mg/kg]
Celery Leafs/Stem: dried, milled Protein 16,2% (Kf 6,25) (mixture 7 products from Europe)	Protein 10 mg/kg #	negative	2/3 Level Food 40,3 Protein 6,53	negative	negative
Celery Roots: dried, milled Protein 9,51% (Kf 6,25) (mixture 6 products from Europe)	Protein 10 mg/kg #	negative	negative	negative	2/3 Level Food 70,2 Protein 6,68
Celery Seeds: dried, milled Protein 19,4% (Kf 6,25) (mixture 8 products from Europe and Asia)	Protein 10 mg/kg	2/3 Level Food 33,0 Protein 6,40	negative	1/6 Level Food 8,87 Protein 1,72	negative
Gluten-containing Cereal *** Wheat Flour: milled Protein 10,3% (Kf 5,83) (mixture 21 products from Europe, Asia, USA)	Protein 50 mg/kg	2/3 Level Food 324 Protein 33,4 Gluten 24,7	negative	negative	1/6 Level Food 82,5 Protein 8,50 Gluten 6,29
Gluten-containing Cereal *** Barley Flour: milled Protein 7,14% (Kf 5,83) (mixture 21 products from Europe, Asia, USA)	Protein 50 mg/kg	negative	2/3 Level Food 435 Protein 31,0 Gluten 24,2	1/6 Level Food 111 Protein 7,94 Gluten 6,19	negative
Lupin Flour (Sweet Lupin): milled Protein 38,6% (Kf 6,25) (mixture 4 products from Europe)	Protein 100 mg/kg	negative	1/6 Level Food 42,8 Protein 16,5	2/3 Level Food 168 Protein 64,8	negative
Peanut: roasted, milled Protein 23,2 % (Kf 5,46) (mixture 18 products from USA, Asia, Africa, South America)	Protein 20 mg/kg	1/6 Level Food 14,6 Protein 3,39	negative	negative	2/3 Level Food 57,0 Protein 13,2
Sesame Seeds (Black Sesame): raw, milled Protein 21,1% (Kf 6,25) (mixture 6 products from Asia and unknown)	Protein 20 mg/kg	2/3 Level Food 59,6 Protein 12,3	negative	negative	negative
Sesame Seeds (White Sesame): raw, milled Protein 24,5% (Kf 6,25) (mixture 10 products from Africa, Asia and South America)	Protein 20 mg/kg	negative	negative	negative	1/6 Level Food 14,2 Protein 3,48

* Allergen contents of „food item“ as indicated in the column of ingredients according gravimetric mixing

** Protein contents according to laboratory analysis (total nitrogen, Kjeldahl)

*** Gluten content in wheat protein 74% and in barley protein 78% according to: AOAC guidelines for validation of quantitative gluten methods (AOAC SG 2025.002)

No action level available for celery leaf/stem and root (value based on celery seeds)

Note: The metrological traceability of temperature, mass and volume during production of the PT samples is ensured by DAkKS-compliant calibrated reference materials.

The detectability or absence of the allergens was tested by DLA using lateral flow assays. The results are in agreement with the spiking of the PT samples 1-4 (see Table 3) with one exception the lower level of gluten from barley in sample 3 was not detected.

Minimum Sample Size / Homogeneity

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 was examined 10-fold by microtracer analysis. Homogeneity was sufficient with a probability of $\geq 25\%$ (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 (Consensus Values*)

Methods	Sample 1	Sample 2	Sample 3	Sample 4
Celery	2/3 Level	2/3 Level	1/6 Level	2/3 Level
Celery PCR	positive	positive	positive	positive
Gluten	2/3 Level	2/3 Level	1/6 Level	1/6 Level
Gluten ELISA / LFD	positive	positive	positive	positive
Barley		2/3 Level	1/6 Level	
Barley PCR	negative	positive	positive	negative
Oat	-	-	-	-
Oat PCR	negative	negative	negative	negative
Rye	-	-	-	-
Rye PCR	negative	negative	negative	negative
Wheat	2/3 Level			1/6 Level
Wheat PCR	positive	negative	negative	positive
Lupin		1/6 Level	2/3 Level	
Lupin ELISA	negative	positive	positive	negative
Lupin PCR	negative	positive	positive	negative
Peanut	1/6 Level			2/3 Level
Peanut ELISA / LFD	positive	negative	negative	positive
Peanut PCR	positive	negative	negative	positive
Sesame	2/3 Level			1/6 Level
Sesame ELISA / LFD	positive	negative	negative	positive
Sesame PCR	positive	negative	negative	positive

* Consensus values $\geq 75\%$ positive or negative results of PT-participants

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 poche/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 poche/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 14 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.



created	approved (PT-Coordinator)	updated
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6 February 2026	6 February 2026	-