PRODUCT INFORMATION SHEET

Response PT Mustard: 5 Processed Samples Mustard flour (Sinapis alba), table mustard (i.a. Sinapis alba), Dijon mustard (Brassica spp), vegetarian spread (heated) and cracker (baked)

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	*DLA ptALR1 (2020) Response PT Mustard: 5 Processed Mustard flour (Sinapis alba), table mustard (i.a. Sinapis alba), Dijon mustard (Brassica spp), vegetarian spread (heated) and cracker (baked)*
Identifier / LOT	*RM 2020-ALR1 Set (1-6)*
Expiry date	*May 2027*
Matrix	*Potato Powder / Maltodextrin*
Physical description	*Powder*
Packaging / weight	*Sealed foil pouche / 6 x 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

Sample series	**Sample 1** **Table Mustard**	**Sample 2** **Dijon Mustard**	**Sample 3** **Vegetarian Spread**	**Sample 4** **Salt Cracker**	**Sample 5** **Mustard Flour**	**Sample 6** **„blank“**
Ingredients	**g/100 g**	**g/100g**	**g/100g**	**g/100g**	**g/100g**	**g/100g**
Potato powder Ingredients: potato, E471, E304, E223, E100 Nutrients per 100 g: Protein 8,3 g, carbohydrates 76 g, fat 0,6 g, salt 0,15 g	75	75	75	62	74	75
Maltodextrin	25	25	25	21	25	25
Allergen-Premixes Ingredients (sample 1, 2, 3 and 5): maltodextrin (94% - 98%), silicon dioxide (<3%), processed allergen products (each 0,026% - 5% mustard)	0,084	0,083	0,41	17	0,080	-
Allergen-Contents	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
*Table Mustard (freeze-dried)** Ingredients: water, mustard seeds, spirit vinegar, salt, sugar, spices and other ingredients Protein 19,8 % ** (9 products, Europe)	54,8	-	-	-	-	-
*Dijon Mustard (freeze-dried)** Ingredients: water, mustard seed, spirit vinegar, salt and other ingredients Protein 19,8 % ** *(5 products, France)*	-	56,7	-	-	-	-
*Veg. Spread (freeze-dried)** Ingredients: 14% table mustard, vegetable oil, water, eggs, figs, vegetables, sugar, lemon juice, sour cream, egg yolk, flax flour, almond flour, apple syrup, sunflower seeds, herbs, turmeric, modified corn starch, potato starch, red wine, honey, coloring: carotenes and others additives Protein 5,9 % *** *(5 products, Germany)*	-	-	695	-	-	-
*Salt Crackers** *(baked 200°C, 25 min)* Ingredients: Water, wheat flour, rapeseed oil, sugar, salt, baking powder and 0,26 % mustard *(Sinapis alba)*(#) Protein 0,069 % *** *(#9 products, Europe, Asia)*	-	-	-	176000	-	-
*Mustard Flour (Sinapis alba)** Protein 26,1 % ** *(9 products, Europe, Asia)*	-	-	-	-	39,9	-
– *as Mustard*	42,0	41,4	40,9	46,6	39,9	-
Extended combined uncertainty (k=2) of mustard-content (= ± 12,7 %)	± 5,33	± 5,26	± 5,19	± 5,92	± 5,07	-

*Allergen contents as „total food“ as described in column ingredients according to gravimetric mixture
** Protein contents according to laboratory analysis of raw material mixtures (total nitrogen according to Kjeldahl with F=5,30 for mustard protein)
***mustard protein content calculated from mustard content according to the declaration of the products or DLA manufacture

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 PT round (for more details see final report).

Reference Values qualitative ELISA

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Number positive	12	12	11	12	12	0
Number negative	0	0	0	0	0	12
Percent positive	100	100	100	100	100	0
Percent negative	0	0	0	0	0	100
Consensus value	positive	positive	positive	positive	positive	negative
Spiking	positive	positive	positive	positive	positive	negative

Methods:

AQ = AgraQuant, RomerLabs

RS-F= Ridascreen® Fast, R-Biopharm

SP = SensiSpec ELISA Kit, Eurofins

VT = Veratox, Neogen

Reference Values qualitative PCR Mustard, in general

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Number positive	4	1	0	4	4	0
Number negative	1	4	4	1	1	4
Percent positive	80	20	0	80	80	0
Percent negative	20	80	100	20	20	100
Consensus value	positive	negative	negative	positive	positive	negative
Spiking	positive	negative	-	positive	positive	negative

Methods:

ASU = ASU §64 Methode/method

div = keine genaue Angabe / andere Methc

div = not indicated / other method

Reference Values qualitative PCR Mustard, yellow *(Sinapis alba)*

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Number positive	7	7	2	7	7	0
Number negative	0	0	2	0	0	7
Percent positive	100	100	50	100	100	0
Percent negative	0	0	50	0	0	100
Consensus value	positive	positive	none	positive	positive	negative
Spiking	positive	positive	positive	positive	positive	negative

Methods:

ASU = ASU §64 Methode/method

SFA = Sure Food Allergen, R-Biopharm / Conge

Reference Values qualitative PCR Mustard, brown and black *(Brassica juncea / nigra)*

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Number positive	5	4	2	1	1	0
Number negative	0	1	2	4	4	4
Percent positive	100	80	50	20	20	0
Percent negative	0	20	50	80	80	100
Consensus value	positive	positive	none	negative	negative	negative
Spiking	positive	positive	-	negative	negative	negative

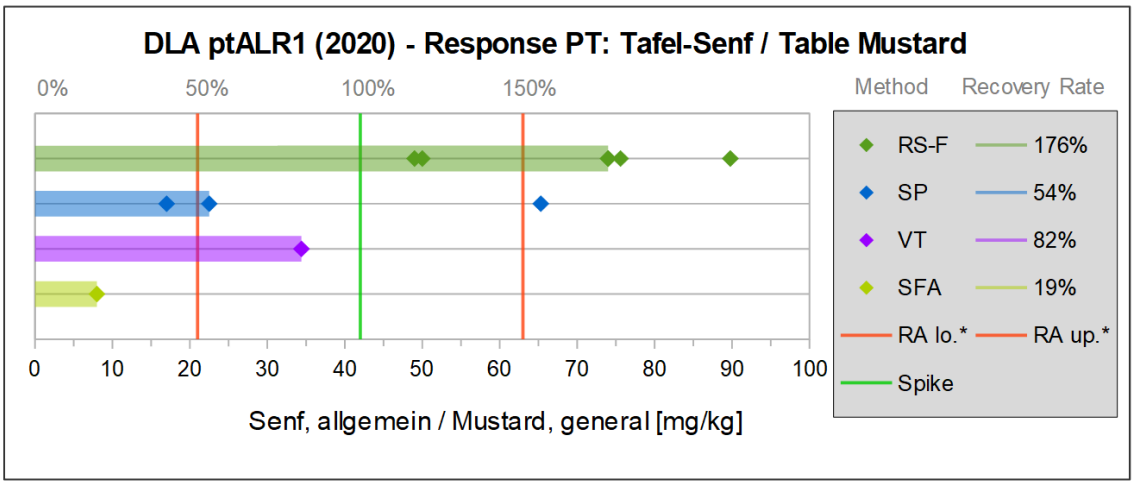
Methods:

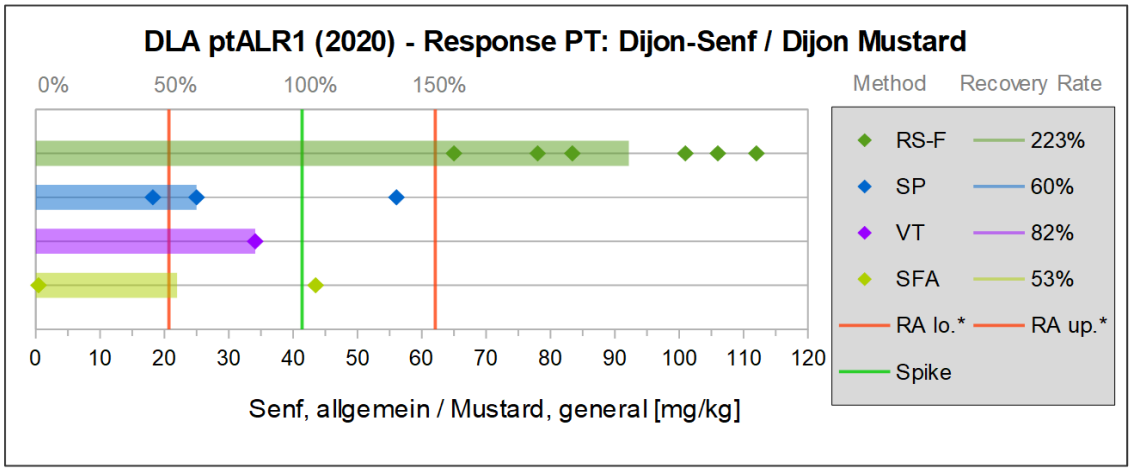
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Median of Recovery Rates: Samples 1-3





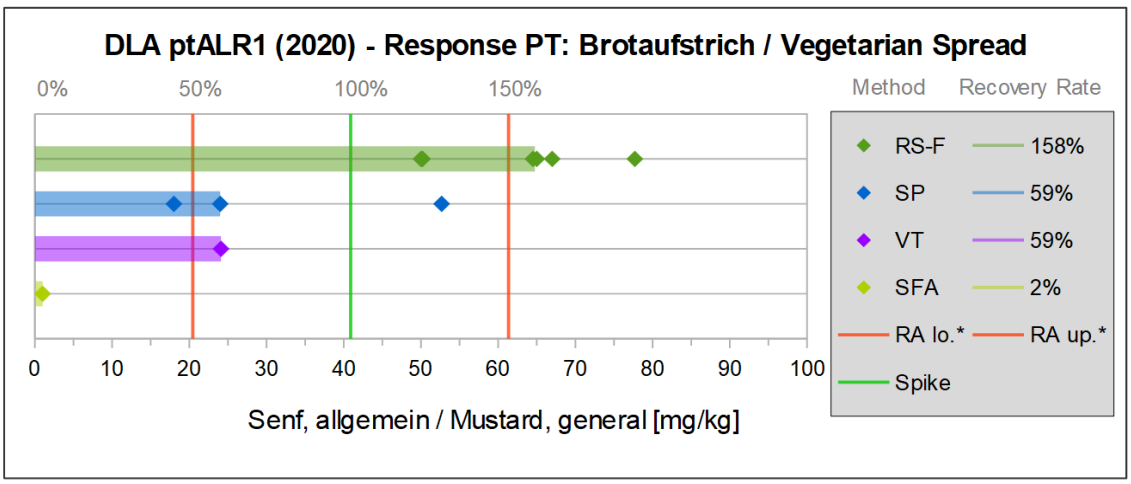
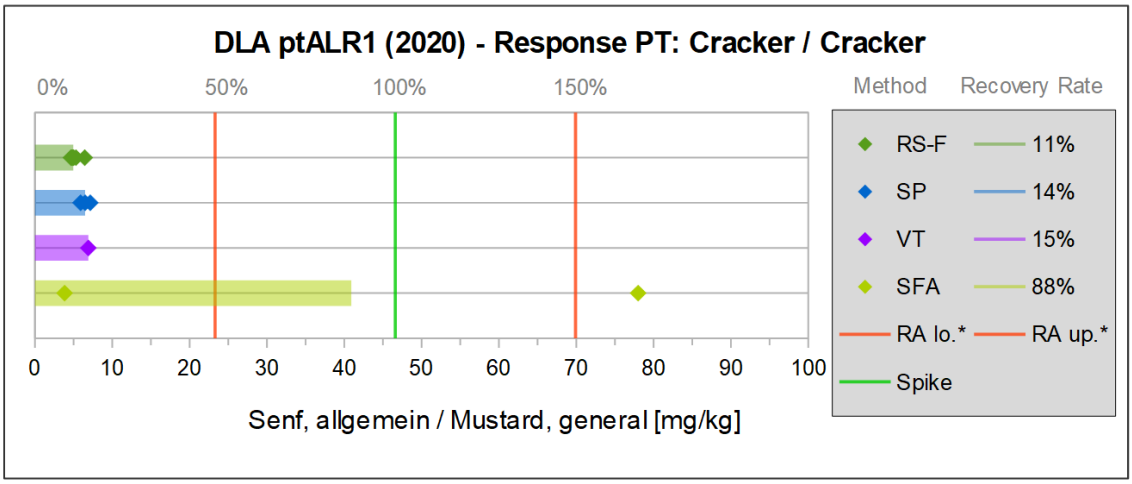


Abb./Fig. 1: Graphs of single results (Samples 1-3) separated by methods with corresponding mean recovery rates, lower scale mustard (general) content in mg/kg, upper scale recovery rate in % with * range of acceptance from 50% - 150% (* range of acceptance: RA lower limit to RA upper limit)

Median of Recovery Rates: Samples 4-5



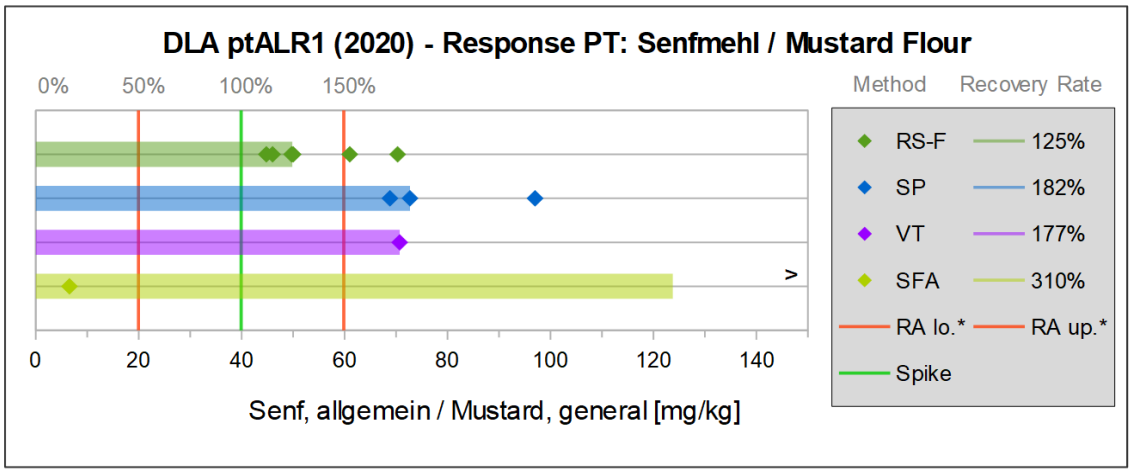


Abb./Fig. 2: Graphs of single results (Samples 4-5) separated by methods with corresponding mean recovery rates, lower scale mustard (general) content in mg/kg, upper scale recovery rate in % with * range of acceptance from 50% - 150% (* range of acceptance: RA lower limit to RA upper limit)

Intended Use

- for laboratory use only, no food!
- validation of analytical methods
- control sample for quality control charts
- test material for inter-laboratory comparisons
- 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 16 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*
16 March 2023	27 May 2026