

PRODUCT INFORMATION SHEET

Food Supplements II: Vitamins A, E, D2, K1, β -Carotene, Coenzyme Q10 (Ubiquinone) and Alpha Lipoic Acid in Capsule Powder

PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	DLA ptSU02 (2025) – Food Supplements II: Vitamins A, E, D2, K1, β -Carotene, Coenzyme Q10 (Ubiquinone) and Alpha Lipoic Acid in Capsule Powder (enriched / high levels)
Identifier / LOT	RM 2025-SU02
Expiry date	August 2027
Matrix	Capsule Powder
Physical description	Powder
Packaging / weight	Sealed foil pouche / 50 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

Composition of Material

Multivitamin capsules, tablets and premixes

Micronutrient premix (1. food supplement)

Ingredients: collagen hydrolysate, maltodextrin, coenzyme Q10, lycopene (Contains: Soy), ascorbic acid, vitamin E acetate, sodium selenite, biotin

Micronutrient premix (2. food supplement)

Ingredients: Calcium carbonate, Ascorbic acid (vitamin C), Ferric pyrophosphate micronized, DL-alpha tocopheryl (vitamin E) acetate powder, Maltodextrin (carrier)
Retinyl (vitamin A) palmitate powder, Nicotinamide, Ergocalciferol (vitamin D2) powder, Calcium-D-pantothenate, Folic acid 10% on corn maltodextrin, Cyanocobalamin (vitamin B12) 0.1% on mannitol, Thiamine (vitamin B1) mononitrate, Pyridoxine (vitamin B6) hydrochloride, Riboflavin (vitamin B2)

Alpha Lipoic Acid powder (3. food supplement)

Ingredients: Alpha lipoic acid

Beta Carotene capsules (4. food supplement)

Ingredients: Beta-carotene, carrot extract, beetroot extract

Vitamin K1 tablets (5. food supplement)

Ingredients: Microcrystalline cellulose (plant fiber), stearic acid, croscarmellose sodium, magnesium stearate, silica, hypromellose, glycerin

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

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), respectively. 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). Furthermore, the calculation of the **repeatability standard deviations S_r of the participants** was used as an indicator of homogeneity. For all parameters except Coenzyme Q10 (Group 1) the repeatability standard deviation was $\leq 7,44\%$. Thus, they were similar to corresponding repeatability standard deviations of precision data of the standardized methods (e.g. ASU / BVL methods / EN ISO methods) (for more details see final report).

Reference Values

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

Reference Values quantitative

Parameter	Alpha Lipoic Acid	Beta-Carotene (without other Provitamins)
	mg/100g	mg/100g
Number of results	5	10°
Number of outliers	0	2
Assigned Value (Xpt)	948	35,8
Robust standard deviation	85,8	12,1
Standard uncertainty	47,9	4,78
Target standard deviation opt	61,3	7,12
Target range	825 - 1071	21,6 – 50,0

° without outliers

Parameter	Coenzyme Q10 (as Ubiquinone) (Info)	Coenzyme Q10 (as Ubiquinone) (Info)	Vitamin A (as retinol without Provitamins)
	mg/100g	mg/100g	µg/100g
	Results Group 1*	Results Group 2**	
Number of results	7	4	18°
Number of outliers	0	0	4
Assigned Value (Xpt)	37,9	820	39790
Robust standard deviation	20,4	113	6306
Standard uncertainty	9,64	70,4	1858
Target standard deviation opt	10,0	78,1	3184
Target range	18,0 – 57,8	664 - 976	33422 - 46158

° without outliers

* The evaluation of the lower results from the first peak (approx. 50 mg/100g) is called "Group 1"

** The evaluation of the higher results from the second peak (approx. 800 mg/100g) is called "Group 2".

(Info): for information only

Parameter	Vitamin D2 (as Ergocalciferol)	Vitamin E (as D-α-Tocopherol)	Vitamin K1 (as Phylloquinone)
	µg/100g	mg/100g	µg/100g
Number of results	16°	21°	12°
Number of outliers	3	1	3
Assigned Value (Xpt)	356	1131	1543
Robust standard deviation	51,3	232	177
Standard uncertainty	16,0	63,2	64,0
Target standard deviation opt	47,1	143	164
Target range	262 - 450	845 - 1416	1216 - 1870

° 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 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 25 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
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<i>signed A. Scharf</i>	<i>signed U. Vorreiter</i>
30 October 2025	1 September 2026