

# Certificate of Quality

**Product appellation, Charge:** Long-term standard R1, D00M05Y21  
 Long-term standard R2, D00M08Y21  
 Long-term standard R3, D00M06Y21  
 Long-term standard R4, D00M04Y21  
 Long-term standard R5, D00M03Y21  
 Long-term standard R6, D00M04Y21

**Product description:**

Shock frozen pasteurized cream (cow) without preservatives.  
 Samples are only for laboratory usage and not for human consumption!

**Packaging:**

Screw capped PP-plastic-bottles, at least 40 mL per bottle.

**Application:**

The materials are suitable for checking accuracy of measurement results in cream analysis.

- Comparison in reference analysis, e. g. bench chemistry methods.
- Slope/Intercept calibration and adjustment of analytical instruments, e. g. infrared instruments.

**Reference values:**

Parameter	Method	Product appellation	Number of results	Reference value ± expanded uncertainty (k=2)	
Fat	Röse-Gottlieb	R1	10	25,12 ± 0,13	g/100 g
		R2	10	30,08 ± 0,06	
		R5	10	32,57 ± 0,10	
		R3	10	34,95 ± 0,07	
		R6	10	37,17 ± 0,07	
		R4	10	39,58 ± 0,14	
Protein (N x 6,38)	Kjeldahl	R2	10	2,30 ± 0,01	g/100 g
		R4	10	2,01 ± 0,02	
Dry Matter	102 °C	R1	10	31,92 ± 0,14	g/100 g
		R2	10	36,38 ± 0,06	
		R5	10	38,75 ± 0,16	
		R3	8	40,97 ± 0,06	
		R6	10	42,92 ± 0,08	
		R4	10	44,99 ± 0,14	

Each parameter was analyzed in at least 5 different according to ISO/IEC 17025 accredited laboratories, each laboratory analyzing in manifold determination. The reference value is the arithmetic mean of all statistically checked measurement results. Accuracy of the reference value was ensured by comparison with the robust mean and IR-spectroscopic measurement.

The expanded uncertainty (k=2) was determined according to ISO Guide 35, taking into consideration the uncertainty between packaging units and the uncertainty of characterization, the uncertainty of stability is not included. Numerous stability tests have shown that the uncertainty of stability can be neglected for the calculation of extended uncertainty.

The metrological traceability is based on the above-named reference methods or the associated SI unit mass.

**Stability:**

Short-term stability under extreme transport conditions and long-term stability of the materials were checked with comparable materials. Stability was confirmed.

**The material is best used before:**

R1	05-2023	R3	06-2023
R2	08-2023	R6	04-2023
R5	03-2023	R4	04-2023

Reference values and their uncertainties are guaranteed under the precondition that the material is stored, prepared and used as described below.

**Homogeneity:**

Homogeneity between packaging units was determined according to ISO Guide 35 on the basis of at least 10 samples taken stratified random from the whole batch. Homogeneity between packaging units is satisfactory.

Parameter	Product appellation	Range of dispersion (95 %)	
Fat	R1	0,096	g/100 g
	R2	0,046	
	R5	0,068	
	R3	0,038	
	R6	0,034	
	R4	0,097	
Protein (N x 6,38)	R2	0,005	g/100 g
	R4	0,008	
Dry Matter	R1	0,095	g/100 g
	R2	0,024	
	R5	0,137	
	R3	0,035	
	R6	0,048	
	R4	0,116	

**Storage:**

Upon receipt of the delivery it must be checked if the samples are completely frozen. If this is the case, samples must be speedily unpacked. Samples must be stored in a suitable freezer immediately.

<b>Storage temperature:                      ≤    - 20 °C</b>
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If samples are partial defrosted, use samples immediately or reject them.

If (partial) defrosted samples are frozen again or if storage temperature is not constantly ≤ - 20 °C (e. g. because warm materials were put into the freezer), samples may be damaged. An instruction on how to handle the samples after receipt is enclosed to each delivery.

**Preparation / Usage:**

The samples must be prepared and used according to the "Instruction for the usage of frozen long-term standards cream". The instruction is enclosed to each delivery.

Manifold measurements and calculation of the mean lead to more reliable results.

**Notes:**

QSE GmbH guarantees the correctness of the contents only if the instruction of preparation and the use of the unchanged material are observed. The material is, in principle, a homogeneous material, on the basis of which no minimum removal rate is specified. The material is suitable for the usual analysis procedures in the dairy industry. On request, the product description and the safety data sheet are available for further information.

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