# Certificate of long term calibration materials (LKM)

Deutsches Referenzbüro für Ringversuche und Referenzmaterialien

STANDARON®

A brand of DRRR GmbH and LUFA-Nord-West

**STANDARON LKM RAW MILK (K6)**

**Charge:** **Apr 2025**
**ref.** **05.11.2026**

## reference values

## LKM RO 25-111

| parameter | reference value | uncertainty | unit | method of choice |
|---|---|---|---|---|
| **fat** | **4,176** | ± 0,011 | g/100g | Röse-Gottlieb |
| **protein (Nx6,38)** | **3,463** | ± 0,015 | g/100g | Kjeldahl |
| **dry matter** | **13,196** | ± 0,066 | g/100g | 102 °C ± 2 °C |
| **lactose (monohydrate)** | **4,780** | ± 0,040 | g/100g | enzym. |
| **freezing point** | **-522,0** | ± 3,6 | m°C | Kryoskopie |
| **urea** | **216,2** | ± 16,3 | mg/kg | enzym. |
| **free fatty acids** | **0,873** | ± 0,087 | mmol/100g Fett | BDI method |
| **casein** | **2,734** | ± 0,012 | g/100g | Kjeldahl |

The reference values werde defined by up to 4 'reference laboratories'. These laboratories are proved according to DIN EN ISO/IEC 17025:2018 in line with the accreditation process of the German accreditation body DAkkS.

For the uncertainty of the reference value the uncertainty of the best estimate of the true value out of the proficiency testing will be chosen. The uncertainty indicates the limits of reliability of the mean at 95,5 % statistical significance.

For the calculation of the reference values 3 different statistical methods were used: sensitive statistic, sensitive statistic including outlier elimination and robust statistic. Each of the statistical methods were rated according the chi2-goodness of fit test. A chi2-value smaller than 7,82 reflects a high confidence in the applied statistics.

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## general information

**SAMPLES ARE UNFIT FOR CONSUMPTION!**

produced: 04/2025

Sample quantity: 50 ml filled in plastic bottle (for direct usage in the IR-instrument)

**The material has to be used within: 03/2027**

**(Storage sealed at -18 °C)**

The material is checked regularly by DRRR.

Information concerning the shelf life: Each passed stability testing extends the shelf life to 6 month. A current certificate is available upon request from DRRR or LUFA Nord-West.

## important information for using the samples

**Please check immediately after receiving the package if the samples are still frozen.**

- Samples are frozen: Freeze them until you will analyse them at -20 °C in a deep freezer
- Samples are NOT frozen: Analyse the samples as soon as possible or dispose of the samples

Before analysing the samples warm them in a 40°C water bath for 30 minutes.

When the material is defrosted please shake the samples vigorously and have a visual control for homogeneity.

After shaking the samples let the samples rest for at least 5 minutes. Before measure the samples they have to be turned carefully.

The contents may change in the opened package. The material is suitable for calibration in IR analysis of raw milk (K6) and to control the reference analytic. Using DRRR calibration materials is a demonstrable substantial improvement of accuracy and a stability of calibration has been achieved.

**A guarantee of the reference values and their uncertainties is only given under the precondition that the material is stored and used as described above.**

## homogeneity

The homogeneity testing was carried out on 25.04.2025.

A homogeneity test was carried out at 10 representative random samples in double determination acc. to ISO 13528 (Intern. Harmonised Protocol).

The homogeneity test was carried out at chosen indicator parameters to get information about the principal suitability of the material. If the between-sample standard deviation Ss of the material homogeneity is smaller than 30 % of a material specific test statistic the samples are classified as homogeny (for further information please see our statistical protocol). When this rule cannot be followed it will be proved if the higher variance is usual for this material type. Only materials which achieve these requirements are used.

Certificate checked: Dr. Milena Ritter

Certificate approved: Dr. Ulrich Leist

