

# Certificate of Reference Materials



## UHT milk 1.5% fat RM CP L MR M 77

ref. 04.02.2020

### reference values

parameter	reference value	uncertainty	unit
fat	1,503	± 0,015	g/100g
dry matter	10,315	± 0,058	g/100g
protein (Nx 6,38)	3,294	± 0,034	g/100g
lactose (monohydrate)	4,827	± 0,049	g/100g
freezing point	----	----	----
density	1,0316	± 0,0007	g/ml
lactulose	----	----	----

The reference values are established on the basis of the corresponding statistical data and reported as rounded data. 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.

### statistical data

parameter	weighted and combined standard deviation / MAD of the best estimate	total uncertainty of the best estimate (95,5%)	method of choice	number of values	number of proficiency testing schemes
fat	± 0,019	± 0,015	Röse-Gottlieb	9	1
dry matter	± 0,081	± 0,058	102 °C ± 2 °C	10	1
protein (Nx 6,38)	± 0,048	± 0,034	Kjeldahl	10	1
lactose (monohydrate)	± 0,047	± 0,049	enzym.	6	1
freezing point	----	----	----	----	----
density	± 0,0011	± 0,0007	alle Methoden/all methods	12	1
lactulose	----	----	----	----	----

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.

The uncertainty indicates the limits of reliability of the mean at 95,5 % statistical significance.

The traceability is based on the method/s of choice if available the reference method. Therefore only the results of those participants which use the method/s of choice or where available the reference method are considered for the best estimate.

Deutsches Referenzbüro für  
Ringversuche und  
Referenzmaterialien GmbH  
Sitz der Gesellschaft: Kempten  
Handelsregister HRB 9496  
Amtsgericht Kempten

Fon: +49 (0)8 31/960 878-0  
Fax: +49 (0)8 31/960 878-99  
E-Mail: info@DRRR.de  
Website: www.DRRR.de  
Bodmanstraße 4 D-87435 Kempten

Sitz der Gesellschaft: Kempten  
Handelsregister HRB 9496  
Amtsgericht Kempten  
Geschäftsführer: Dr. rer. nat. Ulrich Leist,  
Thorsten Helbig M.Eng.

# Certificate of Reference Materials



## general information

### **SAMPLES ARE UNFIT FOR CONSUMPTION!**

UHT milk 1.5% fat

produced: 07/2019

sample quantity 1000 ml      packaging: plastic bottle

**The material has to be used within:** 04/2020

**(Storage sealed at + 6-8 °C)**

The material is checked regularly by DRRR.

Please warm the sample in the closed packaging up to 40 °C. Place the prepared sample completely in a suitable vessel and homogenize the sample e.g. by vigorously shaking and bring it to room temperature afterwards.

The contents may change in the opened package or due to incorrect storage. The material is suitable to be used for regular performance control in chemical analysis of UHT milk 1.5% fat and to control the reference analytic. It is also especially with regard to accuracy, as well as for validation of a laboratories' own method.

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

## homogeneity

The homogeneity testing was carried out on 05.08.2019

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  $S_s$  of the material homogeneity is smaller than 30 % of a material specific test statistic the samples are classified as homogeneity (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: Milena Ritter  
Certificate approved: Dr. Ulrich Leist



**After sample opening the testing has to be carried out immediately. The reference values are only guaranteed until first sample opening**