



PT report - sheep's milk - May 2022

DEPARTMENT OF DAIRY SCIENCE
REFERENCE LABORATORY
FOR MILK AND DAIRY PRODUCTS



Milk fat (g/100g)

Table 1. Sample 1

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	4.89	4.89	4.90	4.89	4.89	4.89	IR spectrometry	MSC 4000	-1.00	-0.89	-0.51
5214	4.90	4.91	4.83	4.87	4.90	4.88	IR spectrometry	KS - 3; MSC 6000	-1.33	-1.19	-0.47
5214	4.95	4.90	-	-	-	4.93	Butyrometric (Gerber)	HRN ISO 2446:2009	0.33	0.30	0.13
6690	4.92	4.92	-	-	-	4.92	IR spectrometry	MSC FT 120	0.00	0.00	-
3473	4.93	4.95	4.95	4.94	4.94	4.94	IR spectrometry	MSC 7 RM	0.67	0.60	0.55

Table 2. Sample 1

Standard deviation of participant results	S_R^*	0.03
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	5
Total number of participants (measurements) without outliers	n	-



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Milk fat (g/100g)

Table 3. Sample 2

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	5.10	5.10	5.09	5.10	5.10	5.10	IR spectrometry	MSC 4000	2.00	0.39	0.20
5214	5.01	4.97	4.99	4.97	5.02	4.99	IR spectrometry	KS - 3; MSC 6000	-1.67	-0.33	-0.16
5214	4.95	5.00	-	-	-	4.98	Butyrometric (Gerber)	HRN ISO 2446:2009	-2.00	-0.39	-0.19
6690	5.07	5.06	-	-	-	5.07	IR spectrometry	MSC FT 120	1.00	0.20	-
3473	5.06	5.05	5.06	5.07	5.06	5.06	IR spectrometry	MSC 7 RM	0.67	0.13	0.07

Table 4. Sample 2

Standard deviation of participant results	S_R^*	0.05
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	5
Total number of participants (measurements) without outliers	n	-



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Milk fat (g/100g)

Table 5. Sample 3

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Reference value ± uncertainty		5.33 ± 0.03		
								Comment	Z	Z'	En	
9594	5.36	5.35	5.36	5.35	5.35	5.35	IR spectrometry	MSC 4000	0.67	0.60	0.34	
5214	5.27	5.27	5.31	5.31	5.32	5.30	IR spectrometry	KS - 3; MSC 6000	-1.00	-0.89	-0.39	
5214	5.25	5.30	-	-	-	5.28	Butyrometric (Gerber)	HRN ISO 2446:2009	-1.67	-1.49	-0.66	
6690	5.37	5.36	-	-	-	5.37	IR spectrometry	MSC FT 120	1.33	1.19	-	
3473	5.31	5.32	5.33	5.33	5.32	5.32	IR spectrometry	MSC 7 RM	-0.33	-0.30	-0.28	

Table 6. Sample 3

Standard deviation of participant results	S_R^*	0.04
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δx	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	5
Total number of participants (measurements) without outliers	n	-



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Protein (g/100g)

Table 7. Sample 1

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	4.73	4.73	4.73	4.75	4.73	4.73	IR spectrometry	MSC 4000	1.33	1.19	0.80
5214	4.69	4.71	4.71	4.70	4.71	4.70	IR spectrometry	KS - 3; MSC 6000	0.33	0.30	0.13
6690	4.70	4.71	-	-	-	4.71	IR spectrometry	MSC FT 120	0.67	0.60	-
3473	4.67	4.69	4.69	4.69	4.69	4.69	IR spectrometry	MSC 7 RM	0.00	0.00	0.00

Table 8. Sample 1

Standard deviation of participant results	S_R^*	0.02
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-



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Protein (g/100g)

Table 9. Sample 2

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	5.27	5.27	5.28	5.28	5.28	5.28	IR spectrometry	MSC 4000	0.33	0.30	0.20
5214	5.29	5.28	5.28	5.28	5.28	5.28	IR spectrometry	KS - 3; MSC 6000	0.33	0.30	0.15
6690	5.28	5.28	-	-	-	5.28	IR spectrometry	MSC FT 120	0.33	0.30	-
3473	5.23	5.24	5.24	5.25	5.24	5.24	IR spectrometry	MSC 7 RM	-1.00	-0.89	-0.95

Table 10. Sample 2

Standard deviation of participant results	S_R^*	0.02
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-



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Protein (g/100g)

Table 11. Sample 3

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	5.42	5.42	5.43	5.43	5.43	5.43	IR spectrometry	MSC 4000	1.33	1.19	0.80
5214	5.40	5.41	5.40	5.40	5.38	5.40	IR spectrometry	KS - 3; MSC 6000	0.33	0.30	0.13
6690	5.39	5.39	-	-	-	5.39	IR spectrometry	MSC FT 120	0.00	0.00	-
3473	5.39	5.40	5.41	5.41	5.40	5.40	IR spectrometry	MSC 7 RM	0.33	0.30	0.28

Table 12. Sample 3

Standard deviation of participant results	S_R^*	0.02
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.03
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-



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Lactose (anhydride) (g/100g)

Table 13. Sample 1

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	5.03	5.03	5.02	5.02	5.02	5.02	IR spectrometry	MSC 4000	0.40	0.38	0.55
5214	5.04	5.04	5.05	5.05	5.06	5.05	IR spectrometry	KS - 3; MSC 6000	1.00	0.96	1.00
6690	4.97	5.00	-	-	-	4.99	IR spectrometry	MSC FT 120	-0.20	-0.19	-
3473	4.99	5.00	5.01	5.01	5.01	5.00	IR spectrometry	MSC 7 RM	0.00	0.00	0.00

Table 14. Sample 1

Standard deviation of participant results	S_R^*	0.03
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.05
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-



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Lactose (anhydride) (g/100g)

Table 15. Sample 2

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	4.91	4.90	4.92	4.91	4.91	4.91	IR spectrometry	MSC 4000	0.60	0.57	0.83
5214	4.91	4.91	4.92	4.92	4.91	4.91	IR spectrometry	KS - 3; MSC 6000	0.60	0.57	0.60
6690	4.87	4.86	-	-	-	4.87	IR spectrometry	MSC FT 120	-0.20	-0.19	-
3473	4.86	4.87	4.87	4.87	4.87	4.87	IR spectrometry	MSC 7 RM	-0.20	-0.19	-0.32

Table 16. Sample 2

Standard deviation of participant results	S_R^*	0.02
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.05
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-



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Lactose (anhydride) (g/100g)

Table 17. Sample 3

Participant ID	Value 1	Value 2	Value 3	Value 4	Value 5	Mean value	Method	Comment	Reference value ± uncertainty		
									Z	Z'	En
9594	4.62	4.63	4.62	4.62	4.63	4.62	IR spectrometry	MSC 4000	0.60	0.57	0.83
5214	4.62	4.62	4.62	4.62	4.59	4.61	IR spectrometry	KS - 3; MSC 6000	0.40	0.38	0.34
6690	4.59	4.60	-	-	-	4.60	IR spectrometry	MSC FT 120	0.20	0.19	-
3473	4.57	4.58	4.58	4.58	4.58	4.58	IR spectrometry	MSC 7 RM	-0.20	-0.19	-0.32

Table 18. Sample 3

Standard deviation of participant results	S_R^*	0.02
Standard deviation of participant results without outliers	S_R	-
Confidence interval	Δ_x	-
Standard deviation for determination of Z and Z' score	σ_{pt}	0.05
Total number of participants (measurements)	N	4
Total number of participants (measurements) without outliers	n	-