ACTALIA Cecalait
BP 70 129
39 801 POLIGNY CEDEX
FRANCE

FINAL REPORT OF INTERLABORATORY COMPARISON

CECALAIT® PHYSICO-CHEMICAL PROFICIENCY TESTING ON RAW MILK

DECEMBER 2022

ENUMERATION OF SOMATIC CELLS

FOREIGN LABORATORIES

Dispatch of samples.	05th Dec 2022
Target date for returning results.	16th Dec 2022
% of results returned on time	77%
Publication date & Sending of statistical treatment.	09th Jan 2023
Time between sending of treatment and dispatch of samples.	35 days

Philippe TROSSAT
Co-ordinator

Your ref. : 9

ACCRÉDITATION
N° 1-2473
PORTÉE
DISPONIBLE SUR
WWW.COFRAC.FR

Your identification number is :   9

CECALAIT® PHYSICO-CHEMICAL PROFICIENCY TESTING ON RAW MILK

Dispatch of samples on : 05-DECEMBER-2022

Criterion : ENUMERATION OF SOMATIC CELLS

Co-ordinator : Philippe TROSSAT

In charge of statistical treatment : Eric MENEGAIN

MAKING :

Sample preparation : the sample preparation is carried out according to the **PPCHLC** procedure in force

Homogeneity test :   The homogeneity test is carried out according to the **PVHOM** procedure in force.
                          This one is realised with 10 samples in duplicate for each level by somatic cells.

Stability test : the stability test is carried out according to the **PVSTAB** procedure in force.

Statistical treatment : the statistical treatment is carried out according to the **DGTEAQT** general directive in force.

Subcontracting : no activity is sub-contracted for the making of this proficiency testing

CONFORMITY:

The homogeneity test results are **up to provisions** taken into the **PVHOM** procedure in force.

The stability test results are **up to provisions** taken into the **PVSTAB** procedure in force.

INFORMATION ON THE ENTITES SUBJECTED TO PROFICIENCY TESTING

The evaluation is based on a series of 10 samples with grades between 40 and 1600 10^3 cells / ml
The performance of the participant is evaluated on the basis of accuracy, Table II and Figure I.
GOAL OF THE EVALUATION : $-50 \leq d \leq 50$ and $Sd \leq 50$.
Participation : 25 laboratories took part and were evaluated for this comparison inter-laboratory.
The results of 15 laboratories performance in agreement with the following limits: 5% on both sides of reference values on

reference sample: 777 10^3 cells/ml from (ISO 13366-2) are used for the calculation of assigned values.

TECHNICAL ASSISTANCE :

An instruction concerning the report of CECALAIT® physico-chemical proficiency testing can be consult it thanks to the following internet link :

https://www.cecalait.fr/ckeditor/Noticechimie2021ANGb.pdf

This instruction explains you :
        * the general principle of the data treatment
        * the treatment of the laboratory's repeatability
        * the treatment of the laboratory's accuracy
        * the exploitation of the performance statistics.
We stay at your disposal for all technical support, for conception or understanding of the data treatment, or for searching the causes of results out of tolerances

OTHER AVAILABLE INFORMATIONS :

We make available (on simple request on your part) all the anonymous results of participants, as well as other statistical data.

EVALUATION OF THE INDIVIDUAL PERFORMANCE OF THE PARTICIPANT

Nota : The grey areas are written as information and are not entered in the field of assessment of the laboratory performance.

Your identification number is : **9**

Table I : (For your information)   **REPEATABILITY - Table of absolute differences between duplicates 10^3 cells / ml**

N°	21	32	33	34	35	36	37	38	39	40	SL	NL
DIFFERENCES	2	7	1	12	8	11	3	26	2	0	7	20

Upper limits :   Differences between duplicates : r = 70.10^3 cells / ml   Limit SL = 1.35 Sr = 34.10^3 cells / ml

DIFFERENCES : Differences between of the laboratory's duplicates   ** : missing value
SL : Standard deviation of repeatability per sample of the laboratory
NL : Number of determinations of the laboratory

Table II :   **ACCURACY - differences (mean - reference) 10^3 cells / ml**

N°	31	32	33	34	35	36	37	38	39	40	TC	$\overline{d}$	Sd	t_{Obs}
MEAN	93	298	1563	573	790	1291	433	1081	210	44	773			
REF.	90	281	1512	563	767	1249	424	1063	207	42	777			
Nb. A.V.	15	15	15	14	15	15	15	15	15	15				
S*	5	14	68	18	32	55	24	45	12	4				
DIFF (MEAN-REF)	+ 3	+ 17	+ 51	+ 10	+ 23	+ 41	+ 8	+ 18	+ 3	+ 2		+ 18	17	3,30

Upper limits : $\overline{d}$ = +/- 50.10^3 cells / ml   Sd = 50.10^3 cells / ml   TC : Reference sample

Individual performance :   For this evaluation, the goal has been reached   ☺

MEAN : Mean values of the laboratory   ♠: Result cancelled according to Grubbs test at 5 %

REF : Assigned values are robust average values per sample according to algorithm A of standard ISO 13528, of 15 laboratories. The reference group was selected according to the labs performance in agreement with the following limits: 5% on both sides of reference values on reference sample: 777   10^3 cells/ml from (ISO 13366-2), after elimination with Grubbs test at 5 %.

S* : Standard deviations of assigned values (robust averages)   Nb. A.V. : Amount of retained values for assigned values

DIFF (MEAN-REF) : Differences between mean value of the laboratory and assigned value

$\overline{d}$ = Mean of differences of the laboratory   Sd = Standard deviation of differences of the laboratory   t = Student test (limit: 2.26 for 10 samples)

t_{Obs} = Observed student test   t = Student test (limit: 2.26 for 10 samples). t_{Obs} >t, so d is significantly ≠ 0

Table III : (For your information) *z* SCORE - Table of *z* SCORE value

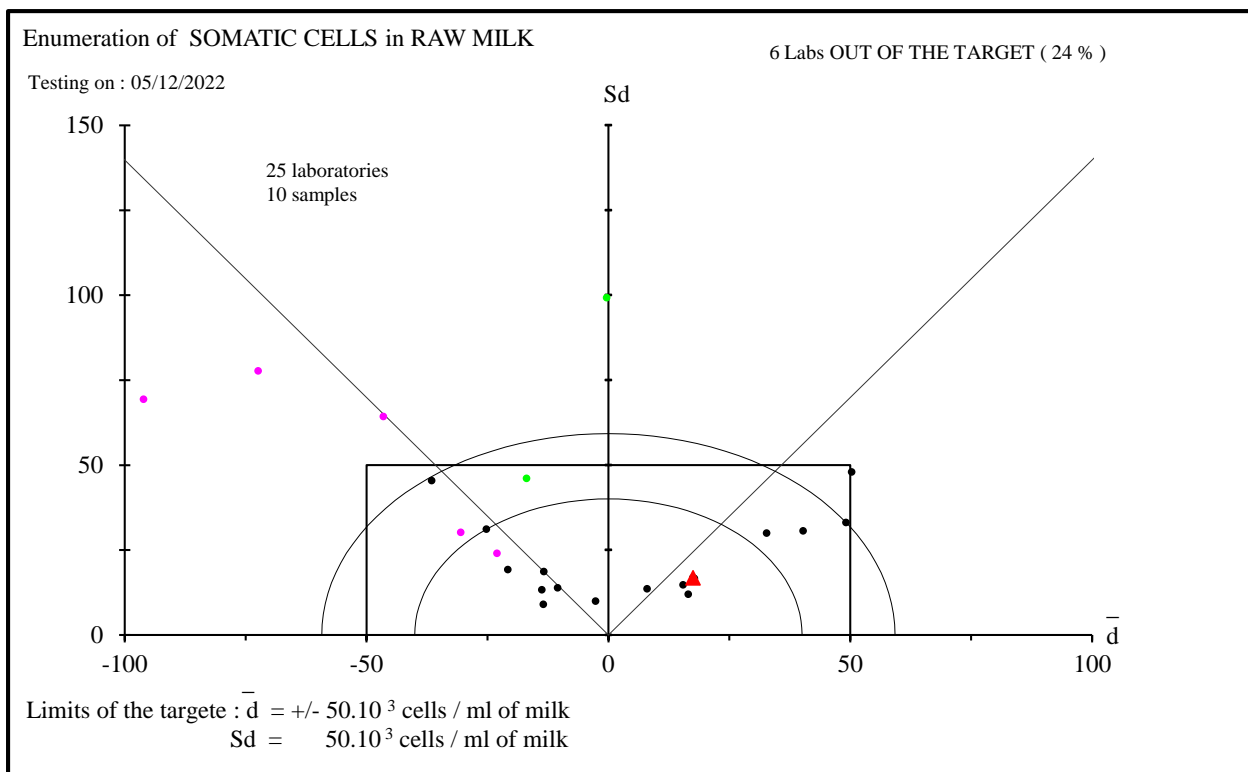| N°	31	32	33	34	35	36	37	38	39	40
Z SCORE	+ 0,53	+ 1,17	+ 0,75	+ 0,53	+ 0,73	+ 0,74	+ 0,34	+ 0,40	+ 0,23	+ 0,40

Z SCORE = (MEAN - REF) / S*   N.C. = *z* score value Not Calculated

Table IV :   **TABLE OF CALIBRATION EVALUATION using the SIMPLE LINEAR REGRESSION (Y = reference, X = laboratory)**
(For your information) Evaluation of the instrument calibration

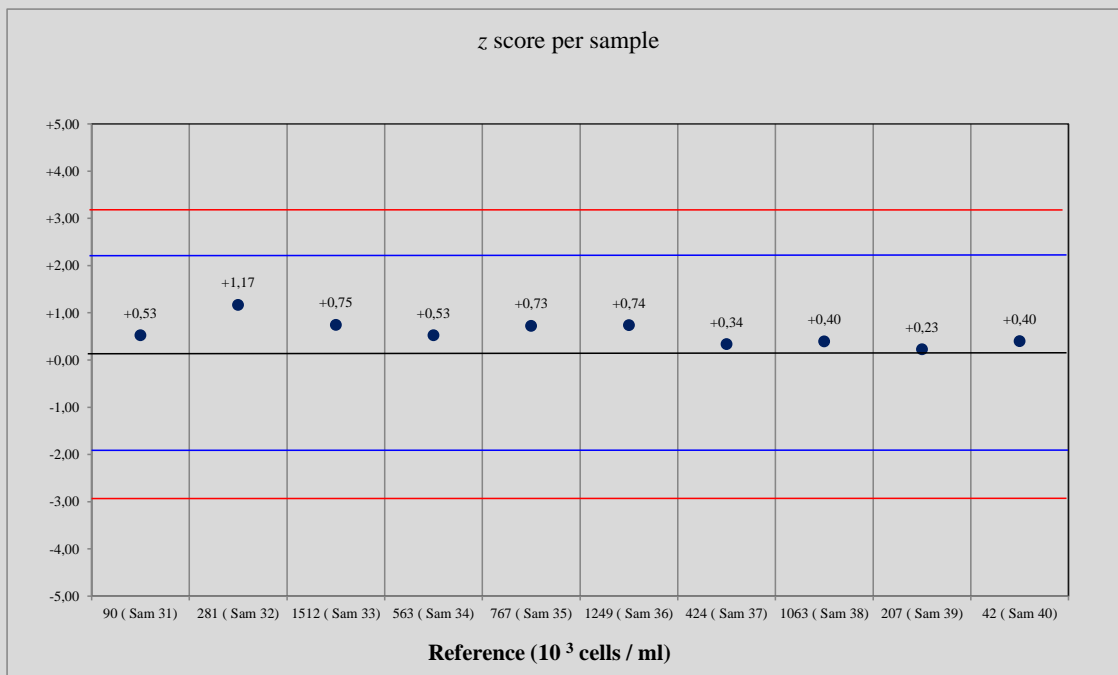| REGRESSION	linear regression equation		t slope	d.f.	Sx-y	Sy,x	d mean	d 200	d 800
	Y = 0,9704 x X	+ 1,33	6,98	8	16,8	6,7	+ 18	+ 5	+ 23

d mean : mean of differences x-y; d 200 and d 800: estimated bias at levels 200 and 800

Sx-y: standard deviation of differences; Sy,x: residual standard deviation of the regression

t slope: test of Student of the slope vs. 1

Figure 1 : **ACCURACY - Evaluation of the overall performances of the participants and the participant N° 9**

Enumeration of SOMATIC CELLS in RAW MILK

6 Labs OUT OF THE TARGET (24 %)

Testing on : 05/12/2022

Sd

150

25 laboratories
10 samples

100

50

0

-100   -50   0   50   100

$\overline{d}$

Limits of the targete : $\overline{d}$ = +/- 50.10^3 cells / ml of milk

Sd =   50.10^3 cells / ml of milk

▲ : Laboratory N° 9

● : Optofluoroelectronic (ISO 13366-2)

● : Microscopic method (ISO 13366-1)

● : Other method

Figure 2 : (For your information)   **ACCURACY - Evaluation of the individual performances according to z score**

z score per sample

Reference	+5,00 to -5,00 scale	z score

+5,00
+4,00
+3,00
+2,00
+1,00   +1,17
+0,53   +0,75   +0,53   +0,73   +0,74
                                                          +0,34   +0,40   +0,23   +0,40
+0,00
-1,00
-2,00
-3,00
-4,00
-5,00

90 (Sam 31) 281 (Sam 32) 1512 (Sam 33) 563 (Sam 34) 767 (Sam 35) 1249 (Sam 36) 424 (Sam 37) 1063 (Sam 38) 207 (Sam 39) 42 (Sam 40)

Reference (10^3 cells / ml)

-2 ≤ z ≤ +2 : satisfactory   -3 < z < -2 ou +2 < z < +3 : warning signal   -3 ≥ z ≥ +3 : signal for action

--**End of report**--