

Reflectoquant® Alkaline Phosphatase Test in Milk

Process validation for pasteurized milk
and raw milk cheese made easy



Alk. Phosphatase Test in Milk

The Reflectoquant® Alk. Phosphatase Test in Milk simplifies the process control of milk pasteurization without costliness.

It provides quantitative data, whether the heat treatment was done at the correct temperature and consequently pasteurized milk reacts alk. phosphatase-negative whereas thermized milk reacts alk. phosphatase-positive. This easy-to-handle and rapid method ensures quality products. Thus, the risk of potential batch rejection is reduced significantly.

Regularly using the Reflectoquant® Alk. Phosphatase Test in Milk during either the pasteurized milk or raw milk cheese production process provides confidence that the products meet the EU regulations on the alkaline phosphatase activity.



Reflectoquant® Alkaline Phosphatase Test

Your advantages

- Easy to use –
only 20min incubation time at 37°C
- Low cost –
minimum investment required for RQflex®
- Reliable results –
trustworthy quantitative method,
objective instrumental measurement
- Low detection limit –
as sensitive as the EU reference method
- Rapid testing –
remedial actions can be taken immediately



Ordering information

Product	Cat. No.
Reflectoquant® Alk. Phosphatase Test in Milk, kit for 50 tests, measuring range 1-10U/l (37°C)	1.16123.0001
RQflex® Reflectometer	1.16970.0001
RQflex® plus Reflectometer	1.16955.0001

Available in addition

Product	Cat. No.
Reflectoquant® Calcium Test	1.16125.0001
Reflectoquant® Lipase Test	1.05851.0001
Reflectoquant® Lactic Acid Test	1.16127.0001
Reflectoquant® Peroxide Test	1.16974.0001
Reflectoquant® Peroxidase Test in Milk	1.16121.0001
Reflectoquant® Urea Test in Milk	1.16120.0001

further tests available

Process validation made easy!

What happens to Alkaline Phosphatase during heat treatment?

Alkaline Phosphatase is an enzyme found in raw mammalian milk like cow's milk. Alkaline Phosphatase does not survive pasteurization of milk, because the enzyme is inactivated by the heat treatment process.

Why determine Alkaline Phosphatase in pasteurized milk and in raw milk cheese?

Effective heat-treatment of milk is essential to ensure the absence of pathogenic microorganisms and hence product safety for the shelf life of pasteurized milk. If the Alk. Phosphatase, originally present in raw milk, then tests negative following pasteurization, the analyst or production manager can be sure that the proper temperature and time control during processing has been used. Raw milk cheese must still test as Alk. Phosphatase positive, otherwise this cheese cannot be classified as such anymore.

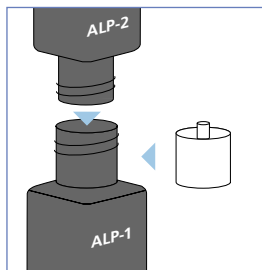
The regulations of the European Union (91/180/EEC and 92/46/EEC) state that pasteurized milk must be Alkaline Phosphatase negative whilst thermized milk must still give a positive Alk. Phosphatase result.

How to measure Alkaline Phosphatase easily?

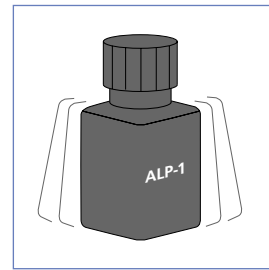
All the complex chemical reaction takes place in the reaction zone of a Reflectoquant® test strip. This strip is simply dipped into the sample solution and any Alk. Phosphatase in the milk converts a specific substrate to form a blue dye. The amount of colour formed in the test strip, which is measured reflectometrically by inserting the test strip into the palm-sized RQflex® instrument, is proportional to the enzyme activity in the sample. The RQflex® automatically calculates and displays the result. The measuring range of 1.0-10 U/l ensures both sensitivity and versatility.



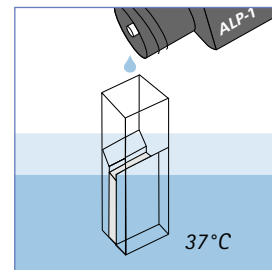
Performing the test is as simple and fast as follows:



1 Pour the contents of ALP-2 into ALP-1, press dropper insert into bottle opening.



2 Reclose ALP-1 and shake briefly.



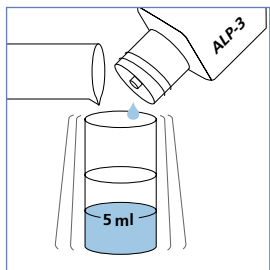
3 Fill 15 drops of ALP-1 into micro-cuvette, adjust to 37°C in a water bath.



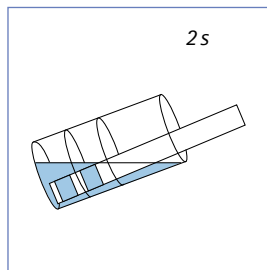
Comparison of the Reflectoquant® Alk. Phosphatase Test in Milk with the EU Reference Method

According to the Decision of the EU Commission (91/180/EEC), any milk whose phosphatase activity is below 4 µg/ml is considered to be phosphatase negative.

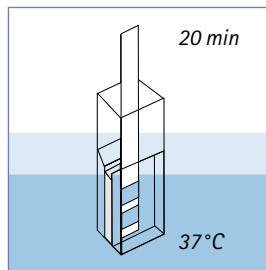
Example: A raw milk in UHT milk	Result with Reflectoquant® Alk. Phosphatase in Milk	Result with the EU Reference Method (91/180/EC)
0% raw milk	LOW	0.1 (= phosphatase negative)
0.1% raw milk	LOW	2.5 (= phosphatase negative)
0.15% raw milk	1.1 U/l	3.2 (= phosphatase negative)
0.2% raw milk	1.5 U/l	4.2 (= phosphatase positive)
0.5% raw milk	3.5 U/l	11.1 (= phosphatase positive)
1.0% raw milk	7.9 U/l	21.8 (= phosphatase positive)



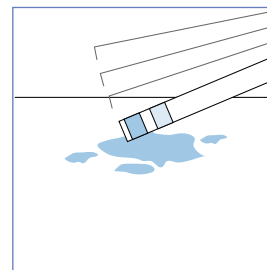
4 Place 5ml sample and 10 drops ALP-3 in the test vessel and mix.



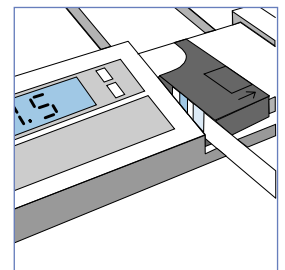
5 Immerse Alk. Phosphatase test strip in the test vessel for 2 s.



6 Within 10s place test strip into micro-cuvette for 20 min at 37°C.



7 Remove test strip and allow excess liquid to run off the strip.



8 Evaluate test strip in the RQflex® reflectometer. Read off the result from display in U/l.

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