

Phosphatase Test

Export certificates for dairy products being exported to the EU for purposes other than human consumption require the following certification, referencing the phosphatase test:

“[the product] has undergone a process involving heating to (temperature) for (time), which ensured a negative reaction to the phosphatase test, followed by, in the case of dried milk or dried milk-based product, a drying process;”

Alkaline phosphatase (ALP) is an enzyme (a protein) widely distributed in nature – it can be found in blue-green algae, slime molds, bacteria and tissues of all members of the animal kingdom.

In 1933, two scientists demonstrated that ALP activity in bovine milk was heat labile (destroyed by heating) and that ALP measurements could be used to monitor the effectiveness of pasteurization (the heating of milk to inactivate bacteria). Throughout the years various scientists have developed different methods of testing for ALP at various sensitivity levels.

ALP can be used as a monitor of the completeness of pasteurization as well as an indicator of raw milk contamination in finished products.

The test is based on the detection of the phosphatase enzyme, a constituent that is inactivated by pasteurization at 63°C (145°F) for thirty (30) minutes or 72°C (161°F) for fifteen (15) seconds. When pasteurization is faulty, some phosphatase remains and is detected through its activity facilitating a chemical reaction which results in a blue color.