

Milk Testing Kit- Mark II

MILK-Q-TEST

Mark II Strip test kit for multiple adulterant detection in milk



Mark II test kit has been envisaged as a portable, light weight, convenient, cost effective kit for popular household testing of milk quality, to make acceptance or rejection decision within 5 minutes.

In developing countries, milk is adulterated to meet demand especially during festive seasons and to increase profit through fraudulent means. Adulterated milk poses serious health issues to the consumer including risks of cancer, kidney failure, heart attack etc. Synthetic milk is a mixture of vegetable oil, urea, cane sugar, neutralizers and detergents at appropriate proportions. Most of these adulterants are used to mimic the colour, consistency, solids-not-fat, nitrogen content and some are added to preserve milk for longer times. Many cases of adulteration and manufacture of synthetic milk have been reported from different parts of India in the recent past. Additionally, India has received an advisory from World Health Organization (WHO) which stated that failure to check adulteration in milk and milk products would see 87% of Indian citizens suffering from serious diseases like cancer by 2025.

Multiple adulterant test strips (MATS) is a rapid test for detecting 7 adulterants in milk viz., boric acid, detergent, hydrogen peroxide, neutralizer, soap, starch and urea and also to test microbial freshness of milk. Acceptance or rejection decision can be taken within 5 minutes. The cost of 80 tests (8 per card) is less than INR 50. It is envisaged as an affordable, light weight, user friendly, portable, rapid testing device for popular household use.

The Mark II Test Kit contains Multiple adulterant test strips (MATS), dropper for adding milk, a reference colour scale shown on the test device and an instruction manual. Reagents entrapped on small sized paper strip give colour reactions on addition of 1 drop (50 μ L) milk. The principle and working of the detection strips are simple color forming reactions resulting in the formation of complex compounds or exchange of anions/cations between the dyes and the constituents of the adulterants. The color formation occurs within 5 minutes.

The availability of multiple strips on a single base has reduced the bulk considerably and also volume reduction of 100 fold for milk is achieved in comparison with MARK I test kit developed by DFRL. The colour spot development is observed on the strip and not in milk, for all the tests. **MATS** can be used conveniently for household testing of milk quality. Civilian consumers can accept or reject milk based on these simple tests available on an easily disposable light weight strip. This system is cheaper and specifically relevant to Indian scenario where the problem of adulterated or synthetic milk is highly prevalent. It is the first of its kind, more cost effective and convenient than the existing solutions.