Newman's Stain, Modified

Intended Use
Newman's Stain, Modified is used for staining of bacteria and somatic cell count in milk or certain milk products.

Composition**

**Formula adjusted, standardized to suit performance parameters

Ingredients
- Methylene blue chloride 0.600 gm
- 95% ethyl alcohol 52.000 ml
- Tetrachlorethane 44.000 ml
- Glacial acetic acid 4.000 ml

Directions
1. Use clean glass slides for smear preparation. For quantitative determination of number of organisms a measured quantity (0.01 ml) of the dairy product (or a known dilution of it) is evenly spread over a 1 sq.cm area of the glass slide. The smear should be rapidly dried at around 45-50°C. Cool it to room temperature.
2. Submerge slides of the fixed, dried films, singly or in multiples, into the stain for 2 minutes.
3. Drain off the excess stain by resting the edge of the slide on absorbent paper.
4. Dry the slides thoroughly (by forced air if available).
5. Rinse the dried stained slides thrice in water at 35°C to 45°C and then drain and air dry before examining the film under the microscope.
6. Examine the film on the slide under an oil-immersion objective after placing one drop of immersion oil on the film.
7. Enumerate the number of cells per ml of dairy product under study.

Principle And Interpretation
It is based on the examination of stained thin film of a measured volume of milk spread over a specified area on a glass slide. The method is useful for rapid estimation of the total bacterial population (including live and dead cells) of a sample of milk.
In this test, milk smear is prepared on one square centimetre area. The smear is stained with Newman's stain and examined under microscope. Each microscopic field examined represents a quantitative aliquot of the milk sample. The number of microscopic fields occurring in one square centimetre area of the milk smear will vary as the diameter of the microscopic field varies with different microscope.(1)

2. Method is not suitable for pasteurized milk.
3. Results are not reproducible because microbes are unevenly distributed in the smear.

Please refer disclaimer Overleaf.
Performance and Evaluation
Performance of the product is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control
Appearance
Dark blue coloured solution.
Clarity
Clear solution without any insoluble particles.

Microscopic Examination
Newman's stain is used for staining somatic cells in milk and the stained slides are examined under the oil immersion objective.

Results
Bacteria: Blue cells observed.
Somatic cells: Blue with distinct nuclear lobes observed.

Storage and Shelf Life
Store between 10-30°C in tightly closed container and away from bright light. Use before expiry date on label. On opening, product should be properly stored in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use.

Disposal
User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (2, 3).

Reference
1. Introductory Dairy Microbiology: Module 4. Microbiological methods of milk testing;

Disclaimer:
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