

Size: 139 mm x 219 mm



## Mastindex California Mastitis Test (CMT)

### SUMMARY

Mastitis or inflammation of mammary gland or udder is an economically important condition in milking animals. Subclinical form of mastitis is considered world-wide to be the most persistent and widespread disease of importance to milk hygiene. Mastitis control is prerequisite to any of the clean milk production programmes. Sub Clinical Mastitis in dairy animals occur when the udder becomes inflamed and bacteria invade the teat canal and mammary glands. These bacteria multiply and produce toxins that cause injury to milk secreting tissue, which cause increase in number of leukocytes or somatic cells in the milk. Somatic Cell Count in milk samples from individual animals can be performed using **Mastindex CMT** Reagent.

### REAGENT

**Mastindex CMT** Reagent contains ready to use anionic surfactant with bromocresol purple. Each batch undergoes rigorous quality control at various stages of manufacture for its specificity and performance.

### REAGENT STORAGE AND STABILITY

1. Store the reagent at room temperature.
2. The shelf-life of the reagent is as mentioned on bottle.

### PRINCIPLE

When milk and **Mastindex CMT** Reagent is mixed in equal amount, the reagent dissolves and forms a homogenous mixture in the absence of clinically significant somatic cells. If clinically significant amount of somatic cells are present, the reagent disrupts the outer cell wall and nuclear cell wall of any leukocyte or epithelial cells, which are primarily fat (Surfactant dissolves fat). DNA (Deoxyribonucleic acid) is now released from nuclei which will gel together to form a stringy mass. As the number of leukocyte increases in a quarter, the amount of gel formation will increase in a linear fashion. No trace of gel formation indicates no infection.

### NOTE

- (1) *In-vitro* Diagnostic Reagent for laboratory and professional use only. Not for medicinal use.
- (2) The Test is designed for use in dairy milk drawn directly from individual mammary quarters sample collection. Shake the bottle well before dispensing.

### SAMPLE COLLECTION

- (1) Either foremilk or stripping may be used.
- (2) Fresh, unrefrigerated milk should be used for **Mastindex CMT** Reagent testing.
- (3) Reliable reading can be obtained from refrigerated milk for upto 36 hours.
- (4) For stored milk, milk sample must be thoroughly mixed prior to testing because somatic cells tend to segregate with milk fat.

### TEST PROCEDURE

- (1) Discard the first stream of milk and draw the next milk into shallow cups on the paddle, keeping the quarters separate. 2.0 mL of milk is ideal for the test. Discard extra milk. (2) Mix equal amount of **Mastindex CMT** Reagent over milk. Avoid bubbles.
- (3) Mix **Mastindex CMT** Reagent and milk by gently rotating paddle in horizontal plane. (4) Record the results by 15-30 seconds.

### INTERPRETATION OF RESULTS

| RESULT          | VISIBLE REACTION   | CONDITION         | PROBABLE SOMATIC CELL COUNT       |
|-----------------|--|-------------------|-----------------------------------|
| Negative        | Mixture remains liquid with no evidence of thickening or formation of precipitate.                           | No Mastitis       | 0-1,00,000 cells/ 0-25% pmn       |
| Trace / Weak    | Slight thickening that tends to disappear with continued movement of the paddle.                             | Trace of Mastitis | 1,50,000 – 3,00,000<br>25-30% pmn |
| Distinct        | Initial thickening of mixture followed by gel formation within few seconds due to swirling motion of paddle. | Mastitis          | 1million-6million<br>50-60% pmn   |
| Strong Positive | Formation of instant gel that adhere to the bottom of paddle.  | Mastitis          | 6million and above<br>70-80% pmn  |

## REMARKS

1. Infected quarters produce normal appearing milk. Infections may continue for weeks before you notice abnormal milk or soreness of the udder.
2. Reactions to **Mastindex CMT** kit are usually weak when caused by injury. Several types of bacteria may infect the udder, **Mastindex CMT** kit does not identify the type. Laboratory culture tests must be used for this purpose.
3. An appropriate attempt should be made to identify the etiologic organisms through various culture and biochemical tests along with antimicrobial susceptibility testing.
4. Fresh milk from healthy cows contain somatic cell of approximately 1,00,000 cells/mL.
5. Dirt, manure and other particles do not interfere with **Mastindex CMT** reading, because there is no DNA.
6. Irritation from malfunctioning or improperly operated milking machines may cause low-scoring **Mastindex CMT** reaction to occur in large numbers.
7. It is recommended that results of test should be correlated with clinical finding to arrive at the final diagnosis.

## PERFORMANCE CHARACTERISTICS

**Mastindex CMT** Kit and a commercially available CMT kit were used in an external evaluation using milk samples from 25 cows and 20 buffaloes at a reputable veterinary pathology laboratory in Maharashtra, India. The evaluation's findings are as follows.

| Milk Samples of Cows and Buffaloes | Mastindex CMT Kit |          | Total |    |
|------------------------------------|-------------------|----------|-------|----|
|                                    | Positive          | Negative |       |    |
| Commercially available CMT Kit     | Positive          | 10       | 0     | 10 |
|                                    | Negative          | 0        | 35    | 35 |
|                                    | Total             | 10       | 35    | 45 |

Based on this evaluation:

**Mastindex CMT** kit and a commercially available CMT kit demonstrated consistent and identical outcomes when tested with the same set of Milk samples, thereby confirming their effectiveness and compatibility in the detection of subclinical mastitis using CMT methodology.

## WARRANTY

This product is designed to perform as described on the label and the package insert. The manufacture disclaims any implied warranty of use and sale for any other purpose.

## BIBLIOGRAPHY

1. Roger Mellenberger.: California Mastitis Test (CMT) -An Invaluable Tool for Managing Mastitis.
2. Sharma, N., V. Pandey & N. A. Sudhan, 2010. Comparison of some indirect screening tests for detection of subclinical mastitis in dairy cows. *Bulg. J. Vet. Med.*, 13, No 2, 98-103.
3. Siamak p. Yazdankhah, 1\* Henning sørum.; Rapid Method for Detection of Gram-Positive and – Negative Bacteria in Milk from Cows with Moderate or Severe Clinical Mastitis, *Journal of Clinical Microbiology*, sept. 2001.
4. Data on file: Microxpress®, a Division of Tulip Diagnostics (P) Ltd.

## SYMBOL KEYS

|  |  |   |   |
|--|--|---|---|
|  Temperature Limitation |  Manufacturer                 |  Batch Code  |  Contains <n> numbers and quantity CMT |
|  Catalogue Number       |  Consult Instructions for use |  Use-by Date |  In vitro Diagnostic Medical Device    |



**Microxpress**<sup>®</sup>

A Division of Tulip Diagnostics (P) Ltd.

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