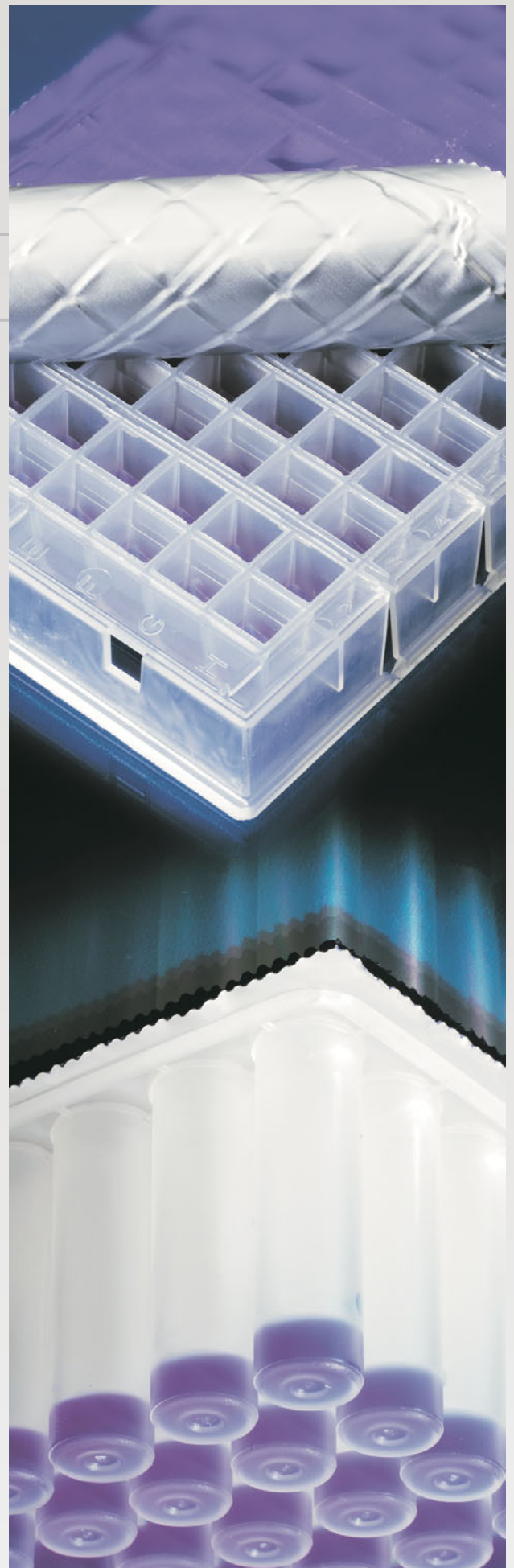
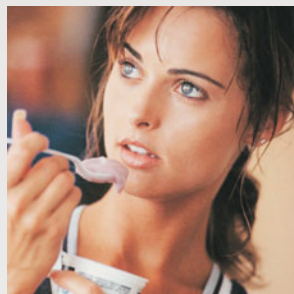
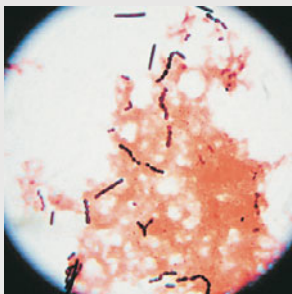




CMT - Copan Milk Test



for the detection of
Antibiotics & Sulphonamides
in milk and milk products



CMT - Copan Milk Test

Copan Milk Test (CMT)

Description and principle of the test

CMT is available as a single test which can be used for analyzing milk samples on a small scale at the farm level and in outlying or satellite testing labs and as a multiple test microplate for large scale analysis at central receiving stations, milk processing plants or quality control laboratories. CMT can be used for the detection of antimicrobial residues in milk from cows, goats and sheep including raw milk, heat-treated milk and milk powder.



The test is supplied in individual tubes and multi-well microplates filled with an agar medium. The agar is pre-seeded with spores of *Bacillus stearothermophilus* var. *calidolactis* and incorporates a fermentable sugar: glucose and a pH indicator: Bromocresol Purple. The test is ready to use with no necessity to activate the product by adding a nutrient tablet. The operator simply pipets 100µl of milk sample directly onto the surface of the agar and then incubates the test at 64°C in a water bath, incubator or heater block for a prescribed length of time. The milk quickly diffuses throughout the agar medium. If there are no antimicrobial substances in the milk sample or the concentration is lower than the limits of detection the *Bacillus* spores germinate, grow and metabolize the sugar. The acid produced from the fermentation of glucose changes the color of the indicator Bromocresol Purple in the medium to a yellow color. Alternatively, if antimicrobial substances are present in the milk sample then germination and growth of the *Bacillus* spores is inhibited. This means there is no fermentation of glucose, no acid production and therefore the Bromocresol Purple indicator in the medium remains a purple color.

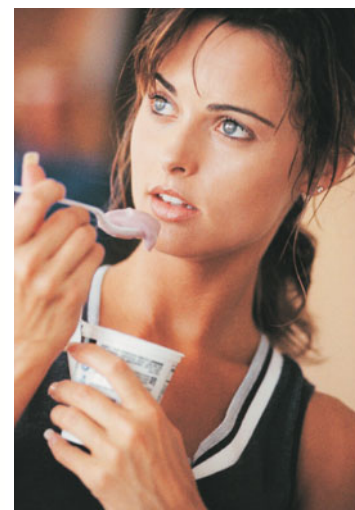
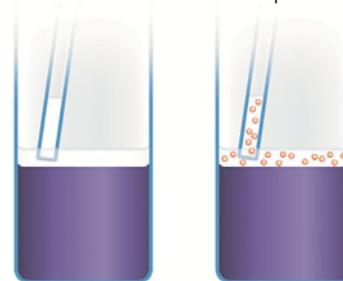
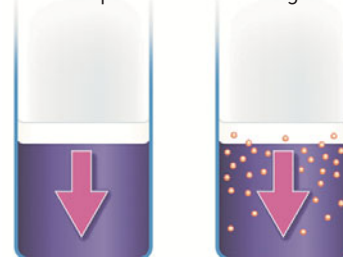


Illustration of the principle:

(1) Add the milk samples



(2) Milk samples diffuse through the agar



(3) Incubate the tests



Negative
(no antibiotics present)

Spores germinate
and bacteria grow →
fermentation of glucose →
acid present → **yellow color**

Positive
(antibiotics present)

Spores inhibited from
germination and growth →
no fermentation of glucose →
no acid → **purple color**

Unique Features & Advantages

No nutrient tablet or product activation needed.

Copan Milk Test is supplied ready to use and does not require any activation or the addition of nutrient tablets before adding the milk sample.



No Drop Count Pipets speeds the testing process

For users performing the SINGLE test in vials, Copan provides unique **No Drop Count Pipets**. Through their unique patented design these pipets accurately deliver 100µl of sample. Simply squeeze the bulb, dip the pipet tip in the milk sample and release the bulb. The pipet draws up at least 100µl and any excess volume is siphoned into and trapped inside two overflow tanks in the pipet. When you squeeze the bulb a second time exactly 100µl of milk is dispensed. This simple device allows tests to be set up accurately and quickly every time without the necessity of using a volumetric micro pipet or by dispensing milk samples by carefully counting drops.



Temperature indicator ensures product integrity

Every box of CMT has a REATEC 40.6°C temperature indicator strip applied to the underneath of the lid. This strip has an indicator window which changes color when exposed to high temperatures. The indicator window should remain a WHITE color if the product has been shipped and stored correctly. If the product has been exposed to 40.6°C or higher the indicator window will turn a BLACK color. If the product has been exposed to temperatures near 40.6°C for a prolonged length of time it may appear slightly GREY in color. The product should not be used if the indicator window is BLACK. The REATEC indicator offers a secure visual check on the integrity of the product which in turn ensures reliable quality test results.

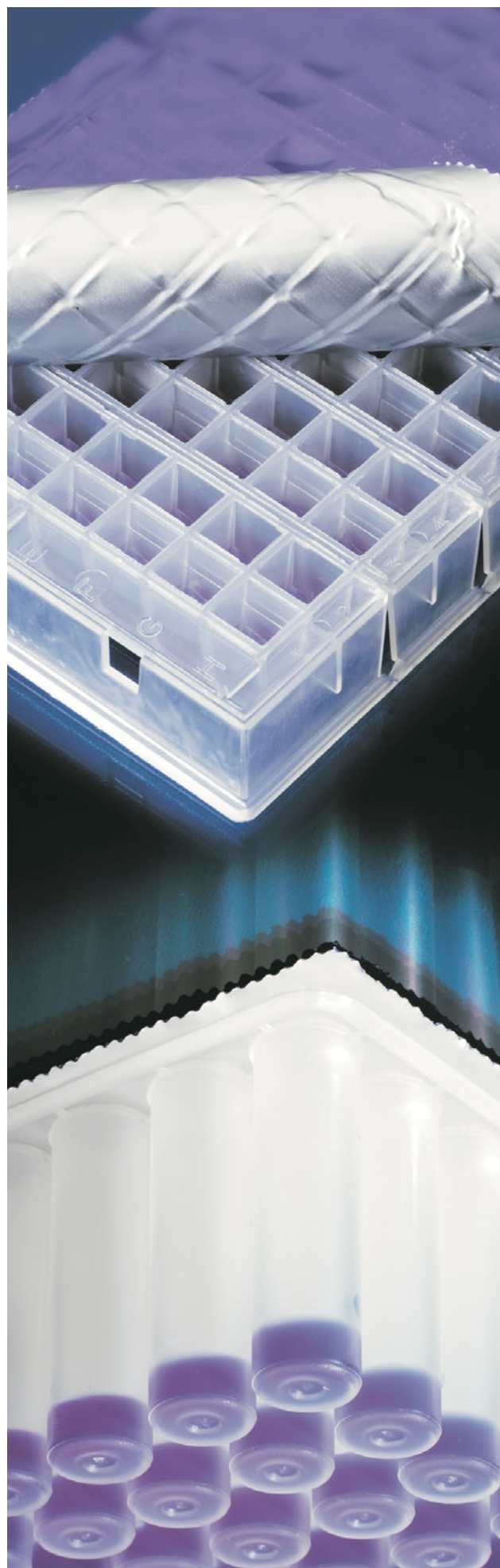


Convenient foam floating racks

Copan provides foam floating racks for individual test vials for labs who use water baths for incubation of the tests.

Easy-break apart MICROPLATE strips

CMT- MICROPLATE assays are provided in easy to separate strips allowing a minimum of 16 tests to be run at any one time.



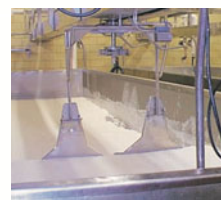
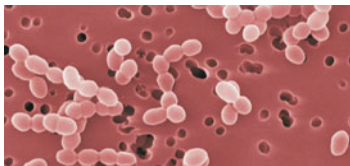
CMT - Test Formats

Description and format

Copan CMT is a microbial inhibition assay which has a high degree of sensitivity enabling the detection of a wide range of antimicrobial agents including Beta Lactams, Tetracyclines, Macrolides, Aminoglycosides, Sulphonamides, Trimethoprim and other antibiotics.

CMT SINGLE Test

Test kits designed for performing individual antimicrobial assays. SINGLE Test kits contain 25 or 100 vials of medium and **No Drop Count Pipets** for the accurate sample and delivery of 100µl of milk. Each reaction vial is separate and can be used for one single test.



CMT MICROPLATE

Test kits designed for performing multiple antimicrobial assays. MICROPLATE kits contain 4 microplates each containing 96 wells filled with medium providing a total of 384 tests. Each 96 well microplate can be separate into 6 strips of 16 tests allowing as little as 16 tests to be run at any one time. Adhesive covers are provided in the kit to cover and re-seal the microplate strips after addition of milk samples.



How to Use - CMT

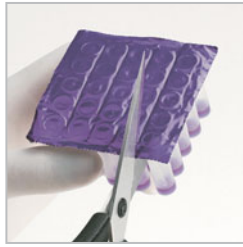
CMT SINGLE Test

Using scissors carefully cut out the required number of single test vials. Pierce or remove the foil covering each test vial to allow entry of the sample pipet.

Using the special **No Drop Count Pipet** included in the kit add 100µl of milk sample into each test vial. Ensure that a new clean pipet is used for each sample. Refer to the pack insert for specific instructions on how to use the **No Drop Count Pipets**.

Incubate the test vials in special heated incubation block or in a water bath heated to 64°C +/- 1°C. For incubation in a water bath Copan supply unique foam floating racks to hold the test vials. It is recommended that when incubating in a water bath that the test vials are properly covered to avoid problems of water condensation. Incubate the tests for 3 hrs.

A color chart is provided as a guide for interpretation of positive and negative color reactions. Read the color and score the result of each test by examining the bottom and sides of the vials.



CMT SINGLE Test

CMT
MICROPLATE



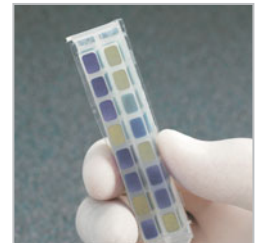
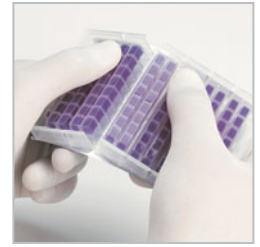
CMT MICROPLATE

The MICROPLATE has 96 test wells divided into 6 strips of 16. As few as 16 tests can be performed at any one time. The operator can separate a strip of 16 wells from the MICROPLATE by simply breaking away a strip. Hold the MICROPLATE so the bottom of the wells is facing upwards and the foil cover is down. Bend the plate along a line between a row of 16 wells to break and release the strip, then carefully use scissors to cut the aluminum foil covering to fully separate the strip from the rest of the MICROPLATE.

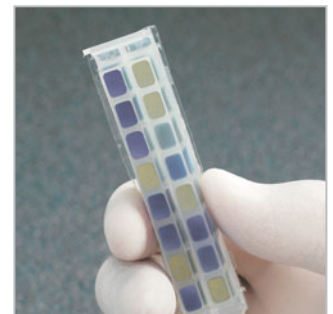
Using a volumetric micro pipetor add 100µl of milk sample into each test well. It is important to remember to use a new clean pipet tip for each sample. Take care to avoid splashes, overspill and cross contamination between adjacent wells. Seal the well of the MICROPLATE strip using the adhesive film provided in the kit.



Incubate the MICROPLATE or strips of the plate in a heated incubation block or water bath at 64°C +/- 1°C. It is essential that when incubating in a water bath that the MICROPLATE strips must be covered with adhesive film to avoid problems of water condensation. Incubate the tests for 3 hrs.

A color chart is provided as a guide for interpretation of positive and negative color reactions. Read the color and score the result of each test by examining the bottom MICROPLATE wells.



CMT - COPAN MILK TEST results



	Positive result	=	Antibiotics are present
	Negative result	=	No Antibiotics present

CMT - Copan Milk Test

DETECTION LIMITS FOR CMT- COPAN MILK TEST

Levels of detection for several antimicrobial substances are showed in this table. The reported data are derived from the most recent evaluation studies performed by independent laboratories. This list serves as a reference only and it is under constant update.

Cat #	Description
934C	CMT SINGLE Test (25 tests)
933C	CMT SINGLE Test (100 tests)
935C	CMT MICROPLATE (384 tests)
K19	Foam Floating Racks for use with SINGLE Test in water bath



1001C	Heated Incubator Block for SINGLE Test 230V AC
1002C	Heated Incubator Block for MICROPLATE Test 230V AC

Storage conditions and shelf life

Store product at 5 to 16°C.
A temperature indicator strip is attached to the underside of the box lid which provides a visual indication if the product has been stored and shipped correctly.
If the indicator turns from white to black do not use the kit.
Shelf life of CMT kits are 12 months from date of manufacture.

Antimicrobial Agents	Antimicrobial Agents Copan Test detection limits (µg/l)	MRL ⁽¹⁾ - (µg/l)
Beta-lactams		
Penicillin G-Na salt	1-2	4
Ampicillin	< 2	4
Amoxicillin	2-4	4
Cloxacillin	10-15	30
Dicloxacillin	10-15	30
Oxacillin	5-10	30
Nafcillin	5-10	30
Ceftiofur ⁽²⁾	50-100	100 ⁽³⁾
Cefquinom ⁽⁷⁾	30-100	20
Cefapirin	2.5-5	10
Cefoperazon	25-50	
Cefalexin	> 45	100
Cefazolin	5-10	50
Tetracyclines		
Chlortetracycline ⁽²⁾	250-500	100 ⁽⁴⁾
Oxytetracycline ⁽²⁾	250-500	100 ⁽⁴⁾
Tetracycline ⁽²⁾	250-500	100 ⁽⁴⁾
Doxycycline ⁽²⁾	150	100 ⁽⁴⁾
Sulphonamides		
Sulfathiazol	50-100	100 ⁽⁶⁾
Sulfamethazine ⁽⁵⁾	100-200	100 ⁽⁶⁾
Sulfadioxine	100-200	100 ⁽⁶⁾
Sulfadimethoxin	50-100	100 ⁽⁶⁾
Sulfadiazin	50-100	100 ⁽⁶⁾
Sulfamethoxazole	< 50	100 ⁽⁶⁾
Sulfamonometossina	< 50	100 ⁽⁶⁾
Aminoglycosides		
DH-Streptomycin	< 1000	200
Streptomycin	< 1000	200
Neomycin	500-2000	500
Gentamicin	100-500	100
Spectinomycin	> 300	200
Macrolides		
Erythromycin	> 200	40
Spiramycin	> 2000	200
Tylosin	50-100	50
Tylmicosin	75-100	50
Other antibiotics		
Dapson	2-4	0 ⁽⁷⁾
Trimethoprim	100-150	50
Tiamfenicol	> 100	50
Chloramphenicol	5000-7500	0 ⁽⁷⁾

1. Regulation 2377/90 ff EEC 2. Mother compound 3. Mother compound and metabolites
4. Mother compound and 4-epimer 5. Sulfadimidine 6. Sum of all substances of this group 7. Not allowed



Check out our website @ www.copaninnovation.com

Copan Italia S.p.a.

Via F. Perotti, 10
Brescia, 25125, Italy
TEL: +39 030 268 7211 • FAX: +39 030 268 7250
E-mail: info@copanitalia.com

Copan Diagnostics Inc.

2175 Sampson Ave. Suite 124 Corona, CA 92879 USA
Toll Free: (800)216-4016 US & Canada
Tel: (909)549-8793 • Fax: (909)549-8850
E-mail: copanswabs@aol.com