HardyCHROM™ MRSA, Contact Plate

Cat. no. P14	HardyCHROM™ MRSA, 15x60mm Contact Plate, 15ml	10 plates/bag

INTENDED USE

HardyCHROM™ MRSA, Contact Plate is a chromogenic medium recommended for use in the cultivation of methicillin resistant *Staphylococcus aureus* (MRSA) from environmental surfaces to aid in the prevention and control of MRSA infections in health care settings. Each contact plate has a specified grid molded into the bottom of the plate for enumeration of microbial colonies growing on a variety of surfaces. HardyCHROM™ MRSA, Contact Plate is not intended to diagnose MRSA infection nor to guide or monitor therapy.

SUMMARY AND PRINCIPLES

Methicillin-Resistant *Staphylococcus aureus* (MRSA) continues to be a major cause of nosocomial and life threatening infections. The prevalence of MRSA within hospital environments and community acquired (CA-MRSA) continue to increase. Infections with MRSA have been associated with high morbidity and mortality. Screening programs have been implemented in most health care settings to identify potential reservoirs so that necessary procedures can be implemented to prevent the spread of MRSA. HardyCHROM™ MRSA medium in a contact plate can assist epidemiologists and infection control personnel to monitor MRSA on environmental surfaces.

Various selective and differential media have been developed as an aid to the detection and identification of MRSA isolates and some media require incubation for up to 48 hours. HardyCHROM™ MRSA, Contact Plate can detect positive results in as little as 16 to 24 hours.

MRSA strains grown in the presence of chromogenic substrates produce deep pink to magenta colonies. The addition of specific inhibitory agents allow for the growth of MRSA strains while preventing growth of MSSA strains. Additional selective agents have been added to increase the sensitivity and specificity of the medium by inhibiting gram-negative organisms, yeast, and some gram-positive cocci. Bacteria other than MRSA may utilize additional chromogenic substrates present in the medium and produce blue or green colonies.

FORMULA

Ingredients per liter of deionized water:*

Sodium Chloride	30.0gm
Peptone	20.0gm
Chromogenic Mixture	2.0gm
Inhibitory and Selective Agents	2.5gm
Agar	15.0gm

Final pH 7.0 +/- 0.2 at 25 degrees C

* Adjusted and/or supplemented as required to meet performance criteria.

STORAGE AND SHELF LIFE

Storage: Upon receipt store at 2-8 degrees C. away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), contamination, or if the expiration date has passed. Product is light and temperature sensitive; protect from light, excessive heat, moisture, and freezing.

The expiration date applies to the product in its intact packaging when stored as directed.

This product has the following shelf life from the date of manufacture:

70 Days	P14	HardyCHROM™ MRSA, Contact Plate

Refer to the keyword "Storage", in the Hardy Diagnostics' software program HUGO™, for more information on storing culture media.

PRECAUTIONS

This product is for laboratory use only and is to be used only by adequately trained and qualified laboratory personnel. Observe approved biohazard precautions and aseptic techniques. All laboratory specimens should be considered infectious and handled according to "standard precautions". The "Guideline for Isolation Precautions" is available from the Centers for Disease Control and Prevention at http://www.cdc.gov/ncidod/dhqp/gl_isolation.html.

For additional information regarding specific precautions for the prevention of the transmission of all infectious agents from laboratory instruments and materials, and for recommendations for the management of exposure to infectious disease, refer to CLSI document M-29: *Protection of Laboratory Workers from Occupationally Acquired Infections: Approved Guideline.*

Sterilize all biohazard waste before disposal.

Refer to the keyword "Precautions", in the Hardy Diagnostics' software program HUGO™, for more information regarding general precautions when using culture media.

Refer to the keyword "MSDS", in the Hardy Diagnostics' software program HUGO™, for more information on handling potentially hazardous material.

PROCEDURE

Method of Use: Hold the plate with thumb and second finger and use index finger to press plate bottom firmly against the selected test surface. The same amount of pressure should be applied for every sample. Do not twist or move the plate laterally. Lateral movement spreads contaminants over the agar surface, thus making resolution of colonies difficult. A rolling motion may be used for slightly curved surfaces.[4]

Section or grid areas (walls, floors, etc.) to be assayed. Samples can then be taken from specific points within the grid.

Incubate the plates aerobically at 35 degrees C. for 16 to 24 hours. Observe plates for characteristic colonial morphology and color. If negative for MRSA, reincubate for an additional 24 hours and read again. If colonies appear at 48 hours and not at 24 hours, coagulase testing (Cat. no. Z202 or ST50) should be performed before reporting as MRSA.

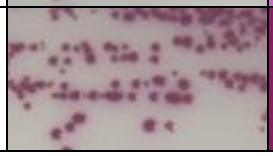
Using adequate light and magnification, count the number of pink colonies within the squares of the grid area. Take care not to count a square more than once. Using a Bactronic or Quebec colony counter, count colonies and record as the number of colonies per contact plate or number of colonies per square centimeter.[8]

Data should be collected and recorded according to a designed monitoring system that statistically provides for the accurate acquisition of data for multiple sampling over time.

INTERPRETATION OF RESULTS

Plate should have fewer than 200 colonies if accurate colony counts are desired.[8] Similar appearing colonies growing in close proximity, but not touching, should be counted as individual colonies.

MRSA will appear as deep pink to magenta colored colonies. Most other organisms will be inhibited on HardyCHROM™ MRSA, Contact Plate for up to 48 hours of incubation. Colonies that are colorless, blue or green should not be considered as MRSA.

Organism	Description	Photo	Color
Methicillin-resistant *Staphylococcus aureus* (ATCC® 43300) 24 hour incubation	deep pink to magenta		
Methicillin-resistant *Staphylococcus aureus* (ATCC® 43300) 48 hour incubation	deep pink to magenta		

LIMITATIONS

Accurate counting can be made difficult by molds or spreading colonies.

Results can be uninterpretable or misleading unless a statistical method for monitoring is designed.

Sampling challenges may occur as a result of irregular, porous, rough or textured media surface.

Microbial contamination on a surface cannot be completely characterized by a single assay.

Contact Plate Media is not recommended for sampling crevices or irregular surfaces.

Ideally, Contact Plate Media should be used on previously cleaned and sanitized surfaces.

It is recommended that biochemical and/or serological tests be performed on colonies from pure culture for complete identification.

Color-blind individuals may encounter difficulty in distinguishing the color differences on HardyCHROM™ MRSA, Contact Plate.

HardyCHROM™ MRSA, Contact Plate is intended for use only on environmental surfaces and not clinical specimens.

Refer to the keyword "Limitations", in the Hardy Diagnostics' software program HUGO™, for more information regarding general limitations on culture media.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, other culture media, Coagulase Cryo™ (Cat. no. Z202), StaphTEX™ (Cat. no. ST50), swabs, applicator sticks, incinerators, and incubators, etc, as well as serological and biochemical reagents, are not provided.

QUALITY CONTROL

The following organisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results
		Time	Temperature	Atmosphere	
Staphylococcus aureus ATCC® 43300**	A	24hr	35ºC	Aerobic	Growth; deep pink to magenta colonies
Staphylococcus aureus ATCC® 29213**	B	24-48hr	35ºC	Aerobic	Inhibited
Staphylococcus epidermidis ATCC® 12228	B	24-48hr	35ºC	Aerobic	Inhibited
Escherichia coli ATCC® 25922	B	24-48hr	35ºC	Aerobic	Inhibited
Enterococcus faecalis ATCC® 29212	B	24-48hr	35ºC	Aerobic	Inhibited

* Refer to the keyword "Inoculation Procedures", in the Hardy Diagnostics' software program HUGO™, for a description of inoculation procedures.

** Recommended QC strains for User Quality Control according to the CLSI document M22 when applicable.

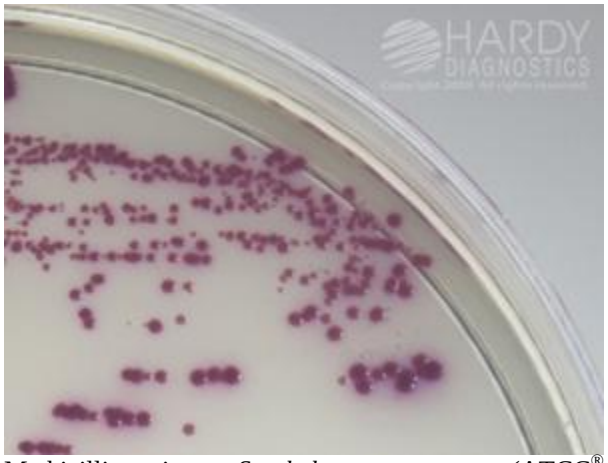
USER QUALITY CONTROL

Check for signs of contamination and deterioration. Users of commercially prepared media may be required to perform quality control testing with at least one known organism to demonstrate growth or a positive reaction; and at least one organism to demonstrate inhibition or a negative reaction (where applicable). Refer to the following keywords, in the Hardy Diagnostics software program HUGO™, for more information on QC: "Introduction to QC" and "QC of Finished Product". Also see listed references for more information.

PHYSICAL APPEARANCE

HardyCHROM™ MRSA should appear translucent, and light amber in color.

Methicillin-resistant *Staphylococcus aureus* (ATCC® 43300) growing on HardyCHROM™ MRSA showing deep pink colonies. Incubated aerobically for 24 hours at 35ºC.



Methicillin-resistant *Staphylococcus aureus* (ATCC® 43300) growing on HardyCHROM™ MRSA showing magenta colonies. Incubated aerobically for 48 hours at 35ºC.

REFERENCES

1. Anderson, N.L., et al. 2005. *Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory*, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.

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4. Isenberg, H.D. *Clinical Microbiology Procedures Handbook,* Vol. I, II & III. American Society for Microbiology, Washington, D.C.

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6. American Public Health Association. 1992. *Standard Methods for the Examination of Dairy Products,* 16th ed. APHA, Washington, D.C.

7. APHA Technical Committee on Microbiological Methods for Foods. 2001. *Compendium of Methods for the Microbiological Examination of Foods,* 4th ed. APHA, Washington, D.C.

8. U.S. Food and Drug Administration. *Bacteriological Analytical Manual.* AOAC, Arlington, VA. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm

ATCC is a registered trademark of the American Type Culture Collection.

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Ordering Information

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