



## HARDYCHROM™ STAPH AUREUS

Cat. no. G311	HardyCHROM™ Staph aureus, 15x100mm Plate, 18ml	10 plates/bag
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### INTENDED USE

HardyCHROM™ Staph aureus is a chromogenic medium recommended for the isolation, differentiation, and enumeration of *Staphylococcus aureus* by colony color.

### SUMMARY

*Staphylococcus aureus* is a gram-positive, coagulase-positive cocci that has been well documented as a human pathogen. *S. aureus* has also been implicated in nosocomial infections and food poisoning outbreaks. Many *S. aureus* strains produce enterotoxins that cause food poisoning when ingested. Food poisoning, bacteremia, pneumonia, toxic shock syndrome, and meningitis are some of the more serious infections that can be caused by *S. aureus*.

HardyCHROM™ Staph aureus allows for the rapid and reliable detection of *S. aureus* from both clinical and food specimens within 24 hours. Peptones in the medium supply the necessary nutrients. Selective agents inhibit the growth of gram-negative organisms, yeast, and some gram-positive cocci. Artificial substrates (chromogens) are broken down by specific microbial enzymes which release insoluble colored compounds. *S. aureus* uses only one of the chromogens and will produce deep pink to fuchsia colored colonies. Bacteria other than *S. aureus* may utilize the other chromogenic substrates and produce blue or turquoise colonies. If none of the substrates are utilized, natural or white colored colonies will be present. This medium can also be utilized in spread plate enumeration techniques.

### FORMULA

Ingredients per liter of deionized water:\*

Peptones	40.0gm
Sodium Chloride	25.0gm
Chromogenic Mixture	4.0gm
Selective Agents	1.0gm
Agar	15.0gm

Final pH 7.1 +/- 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:

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90 Days:

G311

HardyCHROM™ Staph aureus

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

## PRECAUTIONS

This product is *in vitro* diagnostic 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 of Disease Control and Prevention at [www.cdc.gov/ncidod/dhqp/gl\\_isolation.html](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 M29.

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

### Clinical Procedure:

Specimen Collection: Infectious material should be submitted directly to the laboratory without delay and protected from excessive heat and cold. If there is to be a delay in processing, the specimen should be inoculated onto an appropriate transport media and refrigerated until inoculation. Consult listed references for information on specimen collection.<sup>(2-5)</sup>

Method of Use: Allow the plates to warm to room temperature. The agar surface should be dry prior to inoculating. Inoculate the specimen onto the media as soon as possible after it is received in the laboratory. If the material is being cultured from a swab, roll the swab over a small area of the agar surface and streak for isolation. Incubate plates aerobically at 35-37 degrees C. for 20 to 24 hours.

### Industrial Procedure:

Specimen Collection: Consult listed references for information on specimen collection and processing of food, dairy, water samples and other materials of sanitary significance.<sup>(6-8)</sup>

The plates should be warmed to room temperature and the agar surface should be dry before inoculating.

### Spread Plate Method:

1. Prepare serial dilutions in sterile diluent to obtain 30-300 CFU per plate.
2. Aseptically inoculate agar surface with 0.1ml of well mixed diluted sample.
3. Using a sterile spreader device (Cat. no. 174CS01), distribute the inoculum evenly over the agar surface.
4. Incubate plates aerobically for 20 to 28 hours at 35 degrees C.

## INTERPRETATION OF RESULTS

After incubation (20-28 hours), read plates against a white background.

*Staphylococcus aureus* will appear as smooth, deep pink to fuchsia colored colonies. Most other organisms, including *Staphylococcus epidermidis* will be partially to completely inhibited. Other organisms that may grow on HardyCHROM™ Staph aureus may appear as cream, blue, or colorless colonies. *Staphylococcus saprophyticus* will appear as turquoise colored colonies. Some gram-positive organisms other than *S. aureus* may appear as blue colonies.

Spread Plate Method: Following incubation, examine the plates for growth of *S. aureus*. Count the number of colonies and express in number of colony forming units (CFU) per gram or milliliter of sample; take into account the dilution factor. If duplicate plates were set-up, express the average for the two plates in terms of the number of microorganisms per gram or milliliter of sample. Consult listed references for additional information on interpretation and enumeration

of microbial growth on this medium.<sup>(6-8)</sup>

## LIMITATIONS

Color-blind individuals may encounter difficulty in distinguishing the color differences on HardyCHROM™ Staph aureus.

Some non-*S. aureus* colonies may develop a light pink color after 48 hours. Do not incubate plates more than 24 to 28 hours. Some other staphylococcal strains may produce fuchsia colored colonies within 24 hours. Coagulase testing or latex agglutination testing should be used to confirm results.

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, swabs, applicator sticks, other culture media, 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	
<i>Staphylococcus aureus</i> ATCC® 25923**	A	24hr	35°C	Aerobic	Growth; smooth, deep pink to fuchsia colonies
<i>Staphylococcus saprophyticus</i> ATCC® 15305**	A	24hr	35°C	Aerobic	Growth; turquoise colonies
<i>Staphylococcus epidermidis</i> ATCC® 12228	B	24hr	35°C	Aerobic	Partial to complete inhibition; light pink colonies may appear after extended incubation (48 hours)
<i>Enterococcus faecalis</i> ATCC® 29212	B	24hr	35°C	Aerobic	Partial to complete inhibition; blue colonies may appear
<i>Escherichia coli</i> ATCC® 25922**	B	24hr	35°C	Aerobic	Partial to complete inhibition

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

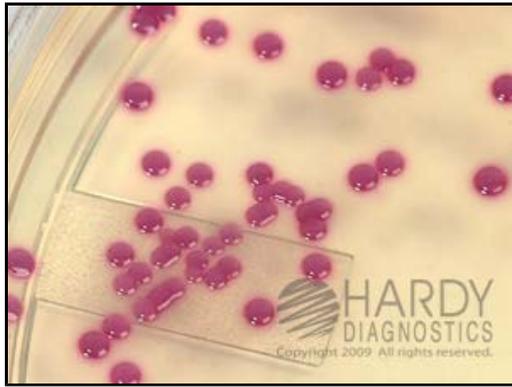
## USER QUALITY CONTROL

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", "QC of Finished Product", and "The CLSI (NCCLS) Standard and Recommendations for User QC of Media". Also see listed references for more information.

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

## PHYSICAL APPEARANCE

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



*Staphylococcus aureus* (ATCC® 25923) colonies growing on HardyCHROM™ Staph aureus (Cat. no. G311). Incubated aerobically for 24 hours at 35 deg. C.



*Staphylococcus saprophyticus* (ATCC® 15305) colonies growing on HardyCHROM™ Staph aureus (Cat. no. G311). Incubated aerobically for 24 hours at 35 deg. C.

## 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.
2. Murray, P.R., et al. 2003. *Manual of Clinical Microbiology*, 8th ed. American Society for Microbiology, Washington, D.C.
3. Forbes, B.A., et al. 2007. *Bailey and Scott's Diagnostic Microbiology*, 12th ed. C.V. Mosby Company, St. Louis, MO.
4. Isenberg, H.D. *Clinical Microbiology Procedures Handbook*, Vol. I, II & III. American Society for Microbiology, Washington, D.C.
5. Koneman, E.W., et al. 2006. *Color Atlas and Textbook of Diagnostic Microbiology*, 6th ed. J.B. Lippincott Company, Philadelphia, PA.
6. *Standard Methods for the Examination of Dairy Products*, 16th ed. 1992. APHA, Washington, D.C.
7. *Compendium of Methods for the Microbiological Examination of Foods*, 4th ed. 2001. APHA, Washington, D.C.
8. U.S. Food and Drug Administration. 1995. *Bacteriological Analytical Manual*, 8th ed. AOAC, Arlington, VA.

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

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