

# Instructions for Use

## CRITERION™ HARDYCHROM™ CANDIDA

<a href="#">Cat. no. C9000</a>	CRITERION™ HardyCHROM™ Candida	97.4gm
<a href="#">Cat. no. C9001</a>	CRITERION™ HardyCHROM™ Candida	500gm
<a href="#">Cat. no. C9002</a>	CRITERION™ HardyCHROM™ Candida	2kg
<a href="#">Cat. no. C9003</a>	CRITERION™ HardyCHROM™ Candida	10kg

## INTENDED USE

Hardy Diagnostics CRITERION™ HardyCHROM™ Candida is a selective medium recommended for the isolation and identification of yeasts. This medium also allows for the differentiation of *C. albicans*, *C. tropicalis* and *C. krusei* based on differences in colony morphology and color. This medium facilitates the detection of mixed yeast cultures.

This dehydrated culture medium is a raw material intended to be used in the making of prepared media products, which will require further processing, additional ingredients, or supplements.

## SUMMARY

CRITERION™ HardyCHROM™ Candida is a selective and differential medium containing chromogenic substrates. After degradation by specific enzymes, the substrates release different colored compounds. Certain species or groups of organisms can then be differentiated with a minimum number of confirmatory tests.

Colonies of *C. albicans* appear green to dark metallic green, *C. tropicalis* colonies appear medium blue to dark metallic blue with a blue halo, and *C. krusei* colonies appear flat, often rough or crenated, and pink to medium pink in color. Other species appear pink, often with a darker mauve center (*C. glabrata* and other species). Other yeasts may appear white to pink.

Additionally, HardyCHROM™ Candida can be used in conjunction with Rapid Trehalose Broth (Cat. no. Z205) or GlabrataQuick™ (Cat. no. Z298) to aid in the identification of *C. glabrata*. When HardyCHROM™ Candida is used as the primary plating medium, only colonies that morphologically (pink, often with a darker mauve center) resemble *C. glabrata* should be tested for trehalose assimilation.

HardyCHROM™ Candida contains glucose and selected peptones as a nutrient supply. Chromogenic substrates are incorporated to enable the production of different colored compounds when degraded by specific enzymes present in the yeast. Chloramphenicol is added as an inhibitory agent against the growth of most bacteria, present in mixed samples.

## FORMULA\*

Gram weight per liter:	48.7gm/L

Glucose	20.0gm
Peptone	10.0gm
Chromogenic Mixture	2.0gm
Chloramphenicol	0.5gm
Agar	15.0gm

Final pH 6.1 +/- 0.2 at 25°C.

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

## STORAGE AND SHELF LIFE

Store the sealed bottle(s) containing dehydrated culture medium at 2-30°C. Dehydrated culture medium is very hygroscopic. Keep lid tightly sealed. Protect dehydrated culture media from moisture and light. The dehydrated culture media should be discarded if it is not free-flowing or if the color has changed from its original light brown.

Store the prepared culture media at 2-8°C. Prepared culture media is light and temperature sensitive; protect from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated below.

Refer to the document "[Storage](#)" for more information.

## PRECAUTIONS

This product may contain components of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not guarantee the absence of transmissible pathogenic agents. Therefore, it is recommended that these products be treated as potentially infectious, and handle observing the usual universal blood precautions. Do not ingest, inhale, or allow to come into contact with skin.

This product is for laboratory use only. It 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." Refer to the document "[Guidelines for Isolation Precautions](#)" from the Centers for Disease Control and Prevention.

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: *Protection of Laboratory Workers from Occupationally Acquired Infections*.

Sterilize all biohazard waste before disposal.

Refer to the document "[Precautions When Using Media](#)" for more information.

## METHOD OF PREPARATION FOR DEHYDRATED CULTURE MEDIA

1. Suspend 48.7gm of the dehydrated culture medium in one liter of distilled or deionized water. Stir to mix thoroughly.
2. Heat to boiling and mix to dissolve completely. Do not overheat.
3. **Do not autoclave.**
4. Cool to 45-50°C and dispense as desired.

## PROCEDURE

Specimen Collection: Consult listed references for information on specimen collection.<sup>(1-8)</sup> 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 the listed references for information regarding the processing of specimens.<sup>(1-9)</sup>

**Protect media from light during storage and incubation as the product is light sensitive.**

Method of Use: Allow the plates to warm to room temperature. The agar surface should be dry prior to inoculating. Inoculate and streak the specimen as soon as possible after collection. If the specimen to be cultured is on a swab, roll the swab over a small area of the agar surface. Streak for isolation with a sterile loop. Incubate plates in an inverted position, protected from the light, aerobically at 35 degrees C. with increased humidity for 48 hours.

Most pathogenic strains of yeast grow at 35°C. Some strains, other than *C. albicans*, *C. krusei*, *C. glabrata* and *C. tropicalis*, may fail to grow at 35 degrees C. If cultivation of all yeast strains is desired, the recommended incubation temperature is 30°C. for up to 7 days, since the lower temperature will slow the growth.

## INTERPRETATION OF RESULTS

Examine plates for colonies showing typical morphology and color.

Some strains may show sufficient growth and color development to be read at 24 hours; however, all plates should be incubated for at least 48 hours to allow for adequate color development. Colors will intensify with age.

A medium size, smooth, green to dark metallic green colored colony at 48 hours is identified as *Candida albicans*. Colonies will appear light green at 24 hours.

A medium size, smooth, medium blue to dark metallic blue colored colony, with a blue halo, at 48 hours is identified as *Candida tropicalis*. Colonies will appear blue to blue-pink at 24 hours.

A large, flat, spreading, often rough or crenated, pink to medium pink colored colony is identified as *Candida krusei*.

A medium size, smooth, pink colored colony, often with a darker mauve center, is presumptively identified as *Candida glabrata*; thus, a Rapid Trehalose test is needed (see "Limitations" below).

Other yeasts are generally small, white to pink colored colonies.

## LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification.

Some formulations may require a settling period before pH testing of the prepared medium. If the pH is tested immediately after preparation and is out of specification, retest the medium after 24 hours to obtain final pH results. Always take pH reading at room temperature.

*Candida* spp., other than *C. glabrata*, may present white to pink colored colonies on HardyCHROM™ *Candida* which is why *C. glabrata* must be confirmed using Trehalose assimilation. Refer to the Rapid Trehalose Broth (Cat. no. Z205) or GlabrataQuick™ (Cat. no. Z298) technical information sheet for additional information concerning the definitive identification of *C. glabrata*.

Some strains of yeast, other than *C. albicans*, *C. krusei*, *C. tropicalis*, and *C. glabrata*, may fail to grow at 35°C. If cultivation of all yeast strains is desired, the recommended incubation is 30°C. for up to 7 days.

Isolates of *C. dubliniensis* will grow on this medium and will produce colors similar to or slightly different from *C. albicans* on primary isolation. The color variation will be lost upon subculture, so additional testing may be required to differentiate the two species.

This product is not intended for the isolation and identification of *Cryptococcus* spp.

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

Refer to the document "[Limitations of Procedures and Warranty](#)" for more information.

## MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, other culture media, Rapid Trehalose Broth (Cat. no. Z205), GlabrataQuick™ (Cat. no. Z298), incinerators, and incubators, etc., as well as serological and biochemical reagents, are not provided.

## QUALITY CONTROL

Hardy Diagnostics tests each lot of commercially manufactured media using appropriate quality control microorganisms and quality specifications as outlined on the Certificate of Analysis (CofA) and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media*. The following microorganisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results at 24 hours	Results at 48 hours
		Time	Temperature	Atmosphere		
<i>Candida albicans</i> ATCC® 10231	B	24-48hr	35°C	Aerobic	Growth; smooth, light green colonies	Growth; smooth, emerald green to dark metallic green colonies
<i>Candida tropicalis</i> ATCC® 750	B	24-48hr	35°C	Aerobic	Growth; smooth, blue to blue-pink colonies	Growth; smooth, medium blue to dark metallic blue colonies, with a blue halo
<i>Candida krusei</i> ATCC® 14243	B	24-48hr	35°C	Aerobic	Growth; flat, pink to medium pink, spreading, colonies	Growth; flat, pink to medium pink, large, spreading, rough, crenated colonies
<i>Candida glabrata</i> ATCC® 66032	B	24-48hr	35°C	Aerobic	Growth; smooth, pink colonies	Growth; smooth, pink colonies, often with a darker mauve center
<i>Escherichia coli</i> ATCC® 25922	B	24hr	35°C	Aerobic	Partial to complete inhibition	Partial to complete inhibition

\* Refer to the document "[Inoculation Procedures for Media QC](#)" for more information.

## USER QUALITY CONTROL

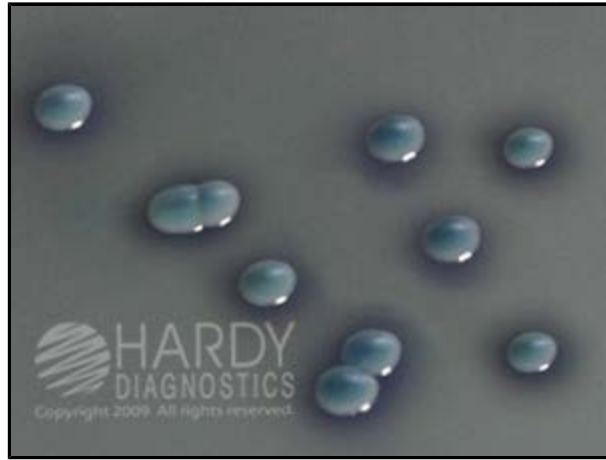
Users of dehydrated culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificate of analysis (CofA) available from Hardy Diagnostics [Certificate of Analysis](#) website. In addition, refer to the following document "[Finished Product Quality Control Procedures](#)," for more information on QC or see the reference(s) for more specific information.

## PHYSICAL APPEARANCE

CRITERION™ HardyCHROM™ Candida powder should appear homogeneous, free-flowing, and light brown in color. The prepared medium should appear transparent, and white to light amber in color.



*Candida albicans* (ATCC® 10231) colonies growing on HardyCHROM™ Candida (Cat. no. G301). Incubated aerobically for 48 hours at 35°C.



*Candida tropicalis* (ATCC® 750) colonies growing on HardyCHROM™ Candida (Cat. no. G301). Incubated aerobically for 48 hours at 35°C.



*Candida krusei* (ATCC® 14243) colonies growing on HardyCHROM™ Candida (Cat. no. G301). Incubated aerobically for 48 hours at 35°C.



*Candida glabrata* ATCC® 66032) colonies growing on HardyCHROM™ Candida (Cat. no. G301). Incubated aerobically for 48 hours at 35°C.

## REFERENCES

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  10. Land, G., et al. Sept. 1996. *Journal of Clinical Microbiology*; Vol. 34, No. 9, p. 2300-2303.

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

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