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# Antifungal Disc

ENGLISH

Discs for antifungal susceptibility test of yeasts

## DESCRIPTION

Antifungal Disc are paper discs with special features that are impregnate with antimicrotics, used for the susceptibility test of yeasts according to the CLSI method. Each antimicrotic is available in packages of 50 and 250 discs.

## CONTENTS OF THE PACKAGES

### Discs in cartridge

The 50-test package contains 1 cartridge with 50 discs packaged in blister with silica gel.

The 250-test package contains 5 cartridges with 50 discs, packaged in blister with silica gel.

Each package also contains a transparent resealable bag.

### Discs in canister

The canister contains 250 discs and a desiccant tablet.

## METHOD PRINCIPLE

The discs are applied to the surface of a culture medium inoculated with the suspension containing pure colonies of the microorganism under examination. After incubation, the plates are examined, the inhibition halos around each disc are examined and compared with the standard inhibition haloes: in this way the microorganisms are defined as being susceptible, susceptible-dose dependent, resistant or non susceptible to the tested antimicrobial agents.

## COMPOSITION

The discs are made of high-quality paper in compliance with WHO and FDA specifications.

Each disc is impregnated with a standardised amount of antimicrotic.

## GATHERING AND KEEPING SAMPLES

The colonies that are to be subjected to the susceptibility test are taken up by culture media that have been previously swabbed with the sample under examination. In the case of mixed colonies the strains must be purified in blood medium or Sabouraud Dextrose Agar before they are swabbed on the plates for the susceptibility test.

## TEST PROCEDURE

For procedural details of the test, see the attached bibliography or the microbiology literature. A brief description of the CLSI method follows.

1. Allow discs to equilibrate to room temperature before opening the container (cartridge or canister) in order to minimize the condensation on the discs, which could affect long-term stability.
2. Make a suspension of the test organism to the density of a 0.5 McFarland turbidity standard for *Candida* spp. and 1 Mcfarland for *C. neoformans*.
3. Immerse a sterile buffer in the suspension and squeeze it on the wall of the test tube to eliminate excess liquid. Drag it along the surface of the susceptibility test medium of yeasts (Mueller Hinton agar + glucose + methylene blue).
4. Position the antifungal discs within 15 minutes from inoculation of the plates, pressing them with a sterile pliers on the surface of the agar and within 15 minutes of depositing of the discs leave the plate to incubate at  $35 \pm 2^\circ\text{C}$  for 24 hours; read at 48 hours only when insufficient growth is observed after 24 hours of incubation.

**EVALUATING THE RESULTS**

At the end of the incubation period, measure the inhibition halos and compare them with the diameters of the standard CLSI inhibition halos. Pinpoint microcolonies at the zone edge or large colonies within a zone are encountered frequently and should be ignored.

**CLINICAL INTERPRETATION**

The susceptibility test carried out *in vitro* cannot exactly reproduce *in vivo* conditions. Nevertheless, it shows the effect of the concentration of the antimicrobial, which varies in the culture medium in relation to the growth of the microbial population. The final choice of antimicrobial to administer to the patient is the responsibility of the clinician who possesses all the information on the patient.

**QUALITY CONTROL**

Each batch of Antifungal Disc is subjected to precise and thorough checks in compliance with CLSI standards using the following strains: *Candida albicans* ATCC 90028; *Candida parapsilosis* ATCC 22019; *Candida tropicalis* ATCC 750; *Candida krusei* ATCC 6258.

**LIMITS**

Diffusion susceptibility tests use an *in vitro* technique and cannot therefore reproduce the extremely complex *in vivo* conditions. Nevertheless, it is a useful and important tool that helps the clinician choose the correct therapy. Many variable factors influence the final result of the diffusion susceptibility test. The main ones are: the culture medium used, impregnation of the discs, inoculation of the medium, temperature, time and incubation atmosphere of the plates, pre-incubation and pre-diffusion conditions, depth of the medium, etc.

**PRECAUTIONS**

The Antifungal Disc cannot be classified as being hazardous according to current legislation. Antifungal Disc are disposable products. Antifungal Disc are for *in vitro* diagnostic use only and are intended for professional use. They must be used in the laboratory by properly trained operators using approved aseptic and safety methods for pathogenic agents.

**STORAGE**

The unopened package of Antifungal Disc can be stored in most cases at  $-20^{\circ}\text{C}$  to  $+8^{\circ}\text{C}$  till the expiry date. Some products have to be stored at  $-20^{\circ}\text{C}$  as maximum storage temperature. The recommended temperature limits can be found both on the product envelop and on the box label. Leftover discs from an opened CARTRIDGE need to be stored at  $2-8^{\circ}\text{C}$  for no more than 7 days. The cartridge containing unused discs should be returned into its desiccant envelope and then inserted into the resealable bag. Discs in a CANISTER can be used for up to 2 months from first opening and must be stored at the label storage temperature. Dispose of expired discs.

**ELIMINATING USED MATERIAL**

After use, Antifungal Disc and the material that comes into contact with the sample must be decontaminated and disposed of in accordance with current laboratory techniques for the decontamination and disposal of potentially infected material.

**NOTE:** See the **Antifungal Disc Interpretative Criteria and Quality Control** table at the end of this document.



# Antifungal Disc

ITALIANO

Dischi per il test di sensibilità agli antimicotici dei lieviti

**DESCRIZIONE**

Antifungal Disc sono dischi di carta, con caratteristiche peculiari, impregnati con antimicotici, utilizzati per il test di sensibilità agli antimicotici dei lieviti secondo il metodo di diffusione in terreni agarizzati indicato dalla CLSI. Ciascun antimicotico è disponibile nella confezione da 50 e 250 dischi.

**CONTENUTO DELLE CONFEZIONI**Dischi in cartuccia

La confezione da 50 test contiene 1 cartuccia con 50 dischi in blister in presenza di gel di silice.

La confezione da 250 test contiene 5 cartucce con 50 dischi in blister, ciascuna in presenza di gel di silice.

Ciascuna confezione contiene inoltre una bustina trasparente con chiusura a pressione.

Dischi in barattolo

Il barattolo contiene 250 dischi e una compressa essiccante.

**PRINCIPIO DEL METODO**

I dischi vengono applicati sulla superficie di un terreno di coltura, inoculato con la sospensione allestita con colonie pure del microrganismo in esame. Dopo l'incubazione, vengono esaminate le piastre, misurati gli aloni di inibizione intorno a ciascun disco e confrontati con i diametri degli aloni di inibizione standard: in tal modo i microrganismi vengono definiti sensibili, sensibili-dose dipendente, resistenti o non sensibili agli agenti antimicotici testati.

**Antifungal Disc Interpretative Criteria and Quality Control.**

ANTIFUNGAL AGENT	µg	Species	SDD				Zone Diameter Ranges (mm)	CLSI QUALITY CONTROL		
			S ≥	I	R ≤					
Caspofungin	CAS	5	<i>C. albicans</i>	17	15-16	-	14	<i>C. albicans</i>	ATCC 90028	18-27
			<i>C. guilliermondii</i>	13	11-12	-	10	<i>C. krusei</i>	ATCC 6258	19-26
			<i>C. krusei</i>	17	15-16	-	14	<i>C. parapsilosis</i>	ATCC 22019	14-23
			<i>C. parapsilosis</i>	13	11-12	-	10	<i>C. tropicalis</i>	ATCC 750	20-27
			<i>C. tropicalis</i>	17	15-16	-	14			
Fluconazole	FLU	25	<i>C. albicans</i>	17	-	14-16	13	<i>C. albicans</i>	ATCC 90028	28-39
			<i>C. glabrata</i>	-	-	≥ 15	14	<i>C. parapsilosis</i>	ATCC 22019	22-33
			<i>C. parapsilosis</i>	17	-	14-16	13	<i>C. tropicalis</i>	ATCC 750	26-37
			<i>C. tropicalis</i>	17	-	14-16	13			
Posaconazole	POS	5		-	-	-	-	<i>C. albicans</i>	ATCC 90028	24-34
								<i>C. krusei</i>	ATCC 6258	23-31
								<i>C. parapsilosis</i>	ATCC 22019	25-36
								<i>C. tropicalis</i>	ATCC 750	23-33
Voriconazole	VO	1	<i>C. albicans</i>	17	15-16	-	14	<i>C. albicans</i>	ATCC 90028	31-42
			<i>C. krusei</i>	15	13-14	-	12	<i>C. krusei</i>	ATCC 6258	16-25
			<i>C. parapsilosis</i>	17	15-16	-	14	<i>C. parapsilosis</i>	ATCC 22019	28-37
			<i>C. tropicalis</i>	17	15-16	-	14			

S = Susceptible I = Intermediate S-DD = Susceptible-Dose Dependent R = Resistant

Description	CLSI	Ref.*
Amphotericin B	AMB 20 µg	9071
Amphotericin B	AMB 10 µg	9137
Caspofungin	CAS 5 µg	9165 •
Clotrimazole	CLO 50 µg	9097
Econazole	ECN 10 µg	9072
Fluconazole	FLU 100 µg	9069
Fluconazole	FLU 25 µg	9166 ✓
Flucytosine	AFY 1 µg	9073
Flucytosine	AFY 10 µg	9148
Griseofulvin	AGF 10 µg	9074
Itraconazole	ITC 50 µg	9107
Itraconazole	ITC 8 µg	9139
Ketoconazole	KCA 10 µg	9075
Ketoconazole	KCA 15 µg	9140
Miconazole	MCL 10 µg	9077
Nystatin	NY 100 units	9078
Posoconazole	POS 5 µg	9167 ✓
Voriconazole	VO 1 µg	9168 ✓

•, to be stored at -20°C

\* Packaging

5 cartridges of 50 discs (5x50 discs = 250 discs).

Single cartridges of 50 discs are available: add /1 to the catalogue ref. no. to indicate the relevant item.

Example: ref. 9168/1 indicates Voriconazole 1 µg in one single cartridge of 50 discs.

250 discs in a CANISTER: add /2 to the catalogue ref. no. to indicate the relevant item.











Example: ref. 9168/2 indicates Voriconazole 1 µg in a canister of 250 discs.

The above list of products might be out-of-date, [view the complete range of Antimicrobial Discs on Liofilchem's website](#)

**REFERENCES / BIBLIOGRAFIA / BIBLIOGRAPHIE / REFERENCIAS**

1. CLSI. Performance Standards for Antifungal Susceptibility Testing of Yeasts. 2nd ed. CLSI supplement M60. Wayne, PA: Clinical and Laboratory Standards Institute; 2020.
2. CLSI. Method for Antifungal Disk Diffusion Susceptibility Testing of Yeasts. 3rd ed. CLSI Guideline M44. Wayne, PA: Clinical and Laboratory Standards Institute; 2018.

**TABLE OF SYMBOLS / TABELLA DEI SIMBOLI / SYMBOLE / TABLA DE SÍMBOLOS**

	Batch code / Numero di Lotto / Charge / Código de lote
	Catalogue number / Numero di catalogo / Artikelnummer / Número de catálogo
	<i>In vitro</i> Diagnostic Medical Device / Dispositivo Medico Diagnostico <i>in vitro</i> / Für die <i>in vitro</i> Diagnostik / Dispositivo médico diagnóstico <i>in vitro</i>
	Temperature limitation / Limiti di Temperatura / Temperaturbereich für die Lagerung / Límites de temperatura
	Fragile, handle with care / Fragile, maneggiare con cura / Zerbrechlich, vorsichtig behandeln / Frágil, manipular con cuidado
	Contains sufficient for <n> tests / Contenuto sufficiente per <n> test / Contains sufficient for <n> tests / Enthält Material für <n> Tests / Contenido suficiente para <n> análisis
	Do not reuse / Non riutilizzare / Einmalgebrauch, nicht wieder verwenden / No reutilizar
	Consult instructions for use / Consultare le istruzioni per l'uso / Gebrauchsanweisung beachten / Consultar instrucciones de uso
	Manufacturer / Fabbricante / Hersteller / Fabricante
	Use by / Utilizzare entro / Verwendbar bis / Utilizar antes de

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