

Functionality evaluation: Antifungal test

【Test method for each type】

JIS L 1921 Absorption method

This is the most common method among the antifungal tests for textile products and is applied to the testing method for SEK mark of Japan Textile Evaluation Technology Council.

Similar international method: ISO 13629-1

【Overview】

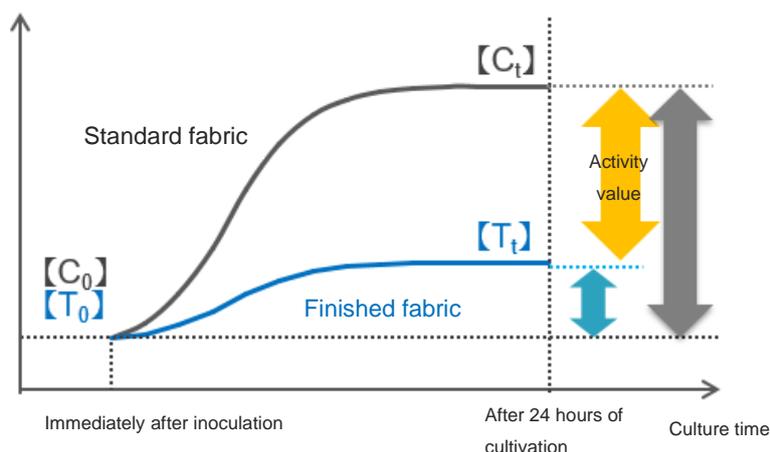
1. Collect spores from pre-cultured fungi test and create spore suspension.
2. Inoculate the spore suspension on both the finished test sample and control sample (cotton standard cloth) and measure the ATP amount (*) after 42 hours of cultivation, in order to measure the amount of living fungi remaining on the test sample.
3. How much of the fungal growth was suppressed can be determined by comparing the amount of fungi on the test sample and the control sample. In other words, the “Anti-fungal activity value” is calculated.

*ATP : Energy substance existing in a living thing

【Evaluation / Reference value】

Evaluate according to anti-fungal activity value

Formula for activity value	Standard	Reference value	Description of the effect (reference) / Objective criterion
Anti-fungal activity value [Aa] (LogC _t -LogC ₀) - (LogT _t -LogT ₀)	JIS	[Aa] ≥ 2.0	1.0 > Aa: No effect
			2.0 > Aa ≥ 1.0: Has a weak effect
			3.0 > Aa ≥ 2.0: Has an effect
			Aa ≥ 3.0: Has a strong effect
	SEK	[Aa] ≥ 2.0	For items frequently washed
			[Aa] ≥ 3.0



Aa : Anti-fungal activity value

LogC₀ : Common logarithm of the average amount of ATP immediately after inoculation of the control sample

LogC_t : Common logarithm of the average amount of ATP after 42 hours of cultivation of the control sample

LogT₀ : Common logarithm of the average value of ATP immediately after inoculation of the test sample

LogT_t : Common logarithm of the average value of ATP after cultivation for 42 hours of the test sample

Contact regarding
antifungal test

Japan

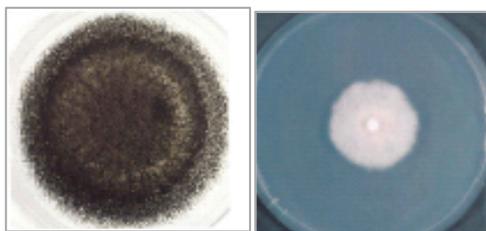
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【Fungal test type】

The fungus subject to being tested are often present in the living environment such as *Aspergillus niger*, *Penicillium citrinum*, *Cladosporium-cladosporioides* and *Trichophyton mentagrophytes* and determined according to the intended use of the product after consulting with the clients.

In SEK standard, it is necessary to conduct tests on any 2 of the 4 types of fungi.



Aspergillus niger

Trichophyton

Fungi type (common name)	JIS	SEK standards 
Aspergillus niger	Select based on the client's specification	Select 2 or more types according to the usage
Penicillium citrinum		
Cladosporium cladosporioides		
Trichophyton mentagrophytes		

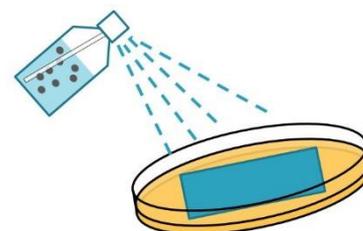
JIS Z 2911 Mold resistance test

The test is for evaluating the product's resistance (whether it becomes food for mold) to mold. A test condition is set for each material (subject to test) such as glass, wood & bamboo, textile, paint and plastic products.

Similar international method: ISO 846

【Overview】

1. Cut the test sample into a specific size.
Put the sample on a petri dish or nutrient agar, prescribed in the test standard.
2. Spray the test sample with a mixed spore suspension mixed with test mold spores determined for each material.
3. Judge the growth of the mold on the surface of the test sample after inoculation.



【Evaluation reference】

Evaluate how much mold is growing against the surface area of the test sample. There are 3 or 5 stages for each test object, and it is a semi- quantitative evaluation standard.

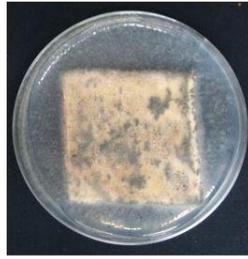
(e.g.) Test for textile products

Mycelium growth	Evaluation result
There is no Mycelium growth observed in the inoculated part of the sample or specimen.	0
The growth part of the Mycelium found in the inoculated part of the sample or specimen does not exceed 1/3 of the entire area.	1
The growth part of the Mycelium found in the inoculated part of the sample or specimen exceeds 1/3 of the entire area.	2

(An example of results)



Result: 1



Result: 2

【Test mold type】

The test uses mold that tends to grow during actual use of the item and mold that is prone to problems and the test is conducted in a state of several types of mold being mixed.

(e.g.)

Test object	Textile product	Paint	Plastic
Mold name (common name)	Aspergillus niger Penicillium citrinum Chaetomium globosum Myrothecium verrucaria	Aspergillus niger Penicillium citrinum Chaetomium globosum Trichoderma virens Aureobasidium pullulans	Aspergillus niger Penicillium citrinum Paecilomyces variotti Trichoderma virens Chaetomium globosum

As we correspond to other non-standardized mold tests, please feel free to consult with us.