

STANDARD NF T 72-281

**Determination of bactericidal, fungicidal,
sporicidal activity**

for

aerial surface disinfection processes

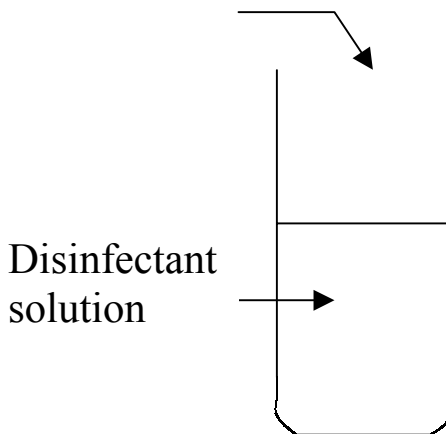
Introduction

The need

Observation of the loss of efficiency between soaking or spraying application and aerial diffusion

Principle of the suspension-test

Germ inoculum



Parameters :

- Inoculum concentration
- Disinfectant concentration
- Contact time
- Temperature
- Hardness of disinfectant solution
- Interfering materials in disinfectant solution



Count of revived microorganisms



Efficiency result (decimal logarithm)



Limits of interest for the user:

Extrapolation of results possible in the field only for soaking disinfection

Extrapolation impossible for C.I.P., spray, foam, fumigation or nebulization disinfectants

Application possible only for disinfectants perfectly mixable with water

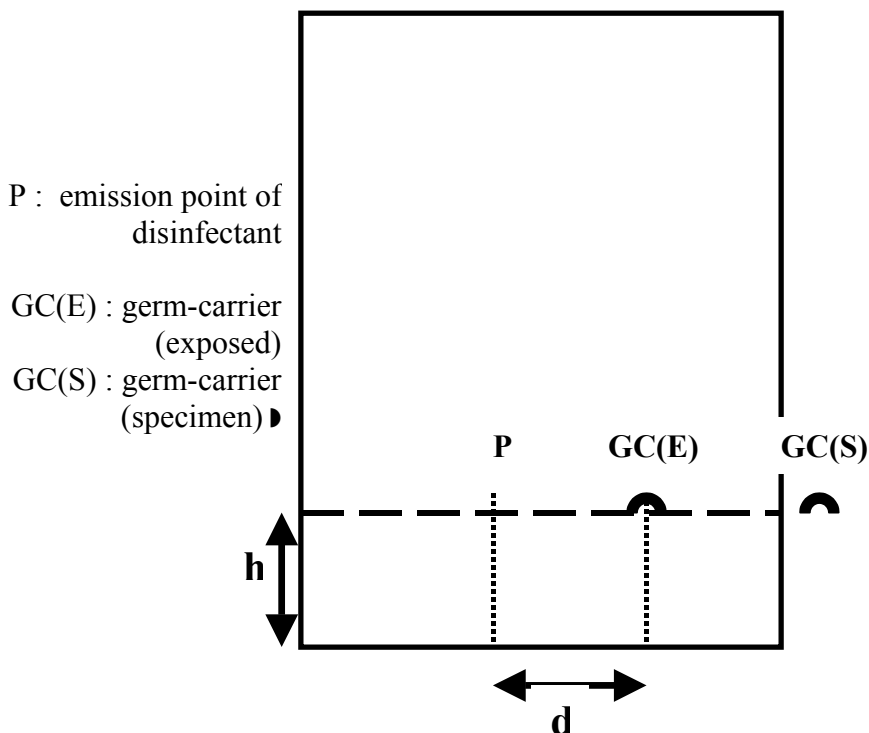
Standard NF T 72-281

**An application standard
reproducing the aerial diffusion of the disinfectant**

French standard published in 1986

To date no international equivalent

Principle of the NF T 72-281 test in the case of automatic or autonomous process



Parameters :

- Airtight room
- Representative volume
- Temperature
- Hygrometry
- Height (h)
- Distance (d)
- Contact time
 - Germ-carrier :
 - Surface
 - Preparation of inoculum
 - Minimal initial population on GC (S)
 - Arrangement of GC (E)



**Count of revived microorganisms
on GC(E) and GC(S)**



Efficiency result (decimal logarithm)

Specifications

A disinfectant can be recognized in accordance with :

- The standard
- or
- The requirements of the Ministry for approval

Germ Strains			
Spectrum	Bactericide	Fungicide	Sporicide
Compulsory	Pseudomonas aeruginosa CIP A 22 Staphylococcus aureus CIP 53154 Enterococcus hirae CIP5855	Penicillium verrucosum CIP1186-79 Candida albicans CIP 1180-79	Bacillus subtilis CIP 5262
Optional	Mycobacterium smegmatis CIP7326 Escherichia coli CIP 54127	-	-
Required for Ministry of Agriculture approval	Pseudomonas aeruginosa CIP A 22 Staphylococcus aureus CIP53154 Enterococcus hirae CIP5855 Escherichia coli CIP 54127	Absidia corymbifera CIP 1129-75 Aspergillus versicolor CIP1187-79 Clasdosporium cladosporoïdes CIP 1232-80 Aspergillus niger ATCC 16404	Bacillus subtilis CIP 5262
Germ strain preparation and culture	Specifications detailed in the standard		

Specifications

Test Conditions		
	Automatic or autonomous process	Directed Manual process
Volume	Free (to be specified in the test report)	• Not specified
Temperature	21° C ± 1° C	• Free (to be specified in the test report)
Humidity	60 % ± 10 %	• Free (to be specified in the test report)
Distance between point of emission of disinfectant and germ carrier	25 % of the greatest diagonal of the room	• A few dozen centimeters (to be specified in the test report)
Positioning of germ carrier	Horizontal, inoculum oriented downwards At the same height as the point of emission of the disinfectant	• Vertical, inoculum oriented towards the emission source
Germ population of initial suspension	10 ⁸ to 10 ⁹ per ml	• 10 ⁸ to 10 ⁹ per ml
Germ population of specimen germ carrier after test	10 ⁶ at least	• 10 ⁶ at least
Contact time and action	Less than or equal to 12 hours (to be specified in the test report)	• Free (to be specified in the test report)

Results required

Bactericide activity	Fungicide activity	Sporicide activity
$r \geq 5 \log$	$r \geq 4 \log$	$r \geq 3 \log$

Conclusion

standard NF T 72-281

application standard the closest to the practical conditions of use of disinfectants.

implementation transposable in the field (factories, hospitals, livestock) in order to assess the actual efficiency of the aerial disinfection system in a specific location.

germ carriers used adaptable to real situations in the field (choice of materials identical to those existing in the field).

qualification and established practice of the operator required.

uncontested high-performance tool available to formulators and users of aerial disinfectant systems to judiciously integrate this technology in a global hygiene plan.

great interest to be examined by the international standardization committees (CEN and ISO).