



Anti-Microbial Testing Report

Company:

Thammasorn Nano Solution Co., Ltd.

Address:

156/20 Petchbury Road, Rajthevi, Bangkok 10400

Test method:

Ouantitative

Test name:

JIS Z 2801: 2000: Test for antimicrobial activity and efficacy

Sample description:

Polyethylene sheet

Number of test microorganisms:

2 strain

Test microorganisms:

1. Escherichia coli ATCC 25922

Inoculum size: 4.43 x 10⁵ CFU

2. Staphylococcus aureus ATCC 6538

Inoculum size: 1.54 x 105 CFU

Volume of test inoculum:

100 µl

Number of replicate:

Incubation temperature:

37°C

Incubation time: 24 hrs.

Test area:

 $3.0 \times 3.0 \text{ cm}^2$

Film type:

Transparency film

Sample cleaning:

The tested surface was sterilized by UV radiation before testing

Result:

Please see results in the next page

Date of issue:

29/09/2009

Reference number:

TS52-I0186/AM141

Tested by

Checahart Warin

Choochart Warin

(Laboratory Officer)

(Assoc.Prof. Dr. Prasert Pavasant) Director of NANOTEC Central Laboratory

Mattapon Sopular. (Dr. Nuttapun Supaka)

Head of Testing and Services Laboratory

Tested by National Nanotechnology Center

Disclaimer

The validity of the test results is strictly limited to the specific samples and the corresponding testing conditions and devices used; no further extrapolation or interpolation of the results is to be inferred. NANOTEC will not and can not take any responsibility or liability for any consequences or damages, which may directly or indirectly result from the use of this test information. Note that NANOTEC is not a certification body. Use of NANOTEC's name or symbol (logo) in any case without prior written permission from the Director of NANOTEC is prohibited.

Anti-Microbial Testing Report

Determination of antimicrobial activity at 24 hrs.

	Test microorganisms	
	Escherichia coli ATCC 25922	Staphylococcus aureus ATCC 6538
Experimental control: PPC Transparency Film pieces		
Number (CFU)	7.93×10^6	6.75×10^6
	. 1 1.	
Sample 1. POLYETHYLENE SHEET (Blank) - Control		
Number (CFU)	1.71 x 10 ⁷	1.03×10^7
Antimicrobial activity (absolute) ^a	UD	UD
% Reduction (absolute) ^b	UD	ŲD
Sample 2. "DOS" SILVER NANO ON POLYETHYLENE	SHEET	
Number (CFU)	$\leq 1.00 \times 10^2$	$\leq 1.00 \times 10^2$
Antimicrobial activity (absolute)	4.90	4.83
% Reduction (absolute)	99.99	99.99
Antimicrobial activity (relative) ^c	5.23	5.01
% Reduction (relative) ^d	99.99	99.99

Remark: An antimicrobial product is judged to be effective when antimicrobial activity value is ≥ 2 Antimicrobial activity is calculated from a formula R=log (B/C)

R = value of antimicrobial activity

B = average of the number of viable cells of bacteria on the untreated test piece after 24 hrs

C = average of the number of viable cells of bacteria on the antimicrobial test piece after 24 hrs

Antimicrobial activity (absolute): calculated using experimental control after 24 hrs % Reduction (absolute): calculated using experimental control after 24 hrs

% Reduction (absolute): calculated using experimental control after 24 hrs
Calculated using the untreated test piece after 24 hrs

d % Reduction (relative): calculated using the untreated test piece after 24 hrs

UD: Undetermined, The control specimens already have antimicrobial activity against the test organism. Negative value means there is no antimicrobial activities in the sample

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(Assoc.Prof. Dr. Prasert Pavasant)
Director of NANOTEC Central Laboratory

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(Dr. Nuttapun Supaka)
Head of Testing and Services Laboratory

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