

Dear Sir/Mdm,

We are pleased to announce the positive results of our recent tests done with TUV/PSB.

### Background and Aim

To prove that Omniyo Nano TiO<sub>2</sub> coating:

1. Works effectively even under **NORMAL** light conditions
2. Has **ULTRA HIGH** anti-microbial activity
3. **BONDS** well on all surfaces including one of the most challenging materials- plastics
4. **REMAINS BONDED** even after ten times (10x) of cleaning with alcohol wipes (simulating a healthcare environment) to provide **CONTINUOUS PROTECTION**

### Why Plastic?

Plastics are specifically chosen as our choice of test substrates as they are widely used in the manufacturing of:

1. Mobile phones and telephones
2. Computers and office equipment
3. Handles
4. Interior decorative material, car interiors, aircraft interiors...

### Interpreting the Results

If the coating is able to bond well and work effectively on plastics, we can then be sure the coating will bond even better to porous materials such as wallpapers, carpets, paints and/or fabrics.

### Conclusion

We are in danger and constantly under the threat of infections via contact with a contaminated surface. As shown in the tests conducted, an uncoated surface may enable bacteria such as

1. *Escherichia coli* to multiply from 140 000 to 3 500 000 counts and
2. *Staphylococcus aureus* to multiply from 140 000 to 6 900 000 counts.

With a coating of Omniyo Nano TiO<sub>2</sub>, the bacteria on the surface is prevented from multiplying and is actively oxidised to almost nothing (<10 counts). The test thus proves that coated surface can **CONTINUOUSLY SELF-SANITIZE** even after harsh cleaning with alcohol wipes.



# TEST REPORT: 7191023852-CHM11-01A-LYP

Date: 03 JAN 2012

Tel: +65 68851346 Fax: +65 67732912

Client's Ref:

Email: Yin-Pheng.LEONG@tuv-sud-psb.sg

**Note:** This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.



PSB Singapore

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Add value.

## **SUBJECT**

Antimicrobial Activity of Coated Panels

## **CLIENT**

Omniyo Pte Ltd  
16 Jalan Kilang Timor  
#03-08, Redhill Forum  
Singapore 159308

Attn : Mr. Ng Joo Kok

## **SAMPLE SUBMISSION DATE/ TEST DATE**

20 Dec 2011/ 21 Dec 2011

## **DESCRIPTION OF SAMPLE**

2 coated and uncoated sample panels were submitted and labelled as below:

1. Sample 1 – 12 : Uncoated
2. Sample 13 – 18 : Coated with no treatment

## **METHOD OF TEST**

JIS Z 2801 : 2000

"Antimicrobial products – Test for antimicrobial activity and efficacy".

The test microorganisms used were :

*Escherichia coli* (ATCC 8739)  
*Staphylococcus aureus* (ATCC 6538P)

All sample panels were exposed under fluorescence day light for 24 hours during the exposure period.



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TUV®

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## RESULTS

Test microorganism (Bacterial cells per test piece)	Average of the number of viable cells of test microorganism per test piece		Value of Antimicrobial Activity (Criteria : Not less than 2.0)
	0 hour	24 hours	
<b><i>Escherichia coli</i> (ATCC 8739)</b> <b>(4.8 x 10<sup>5</sup> cells)</b>			
Sample 1 – 12 : Uncoated	140 000	3 500 000	-
Sample 13 – 18 : Coated with no treatment	-	Less than 10	More than 5.54

Test microorganism (Bacterial cells per test piece)	Average of the number of viable cells of test microorganism per test piece		Value of Antimicrobial Activity (Criteria : Not less than 2.0)
	0 hour	24 hours	
<b><i>Staphylococcus aureus</i> (ATCC 6538P)</b> <b>(6.8 x 10<sup>5</sup> cells)</b>			
Sample 1 – 12 : Uncoated	140 000	6 900 000	-
Sample 13 – 18 : Coated with no treatment	-	Less than 10	More than 5.84

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Note :

The value of Antimicrobial Activity was calculated as  $\log_{10}$  of average of the number of viable bacterial cells on the Blank Panel (Control) after 24 hours minus the  $\log_{10}$  of average of the number of viable bacterial cells on the Sample Panel after 24 hours.

Remarks:

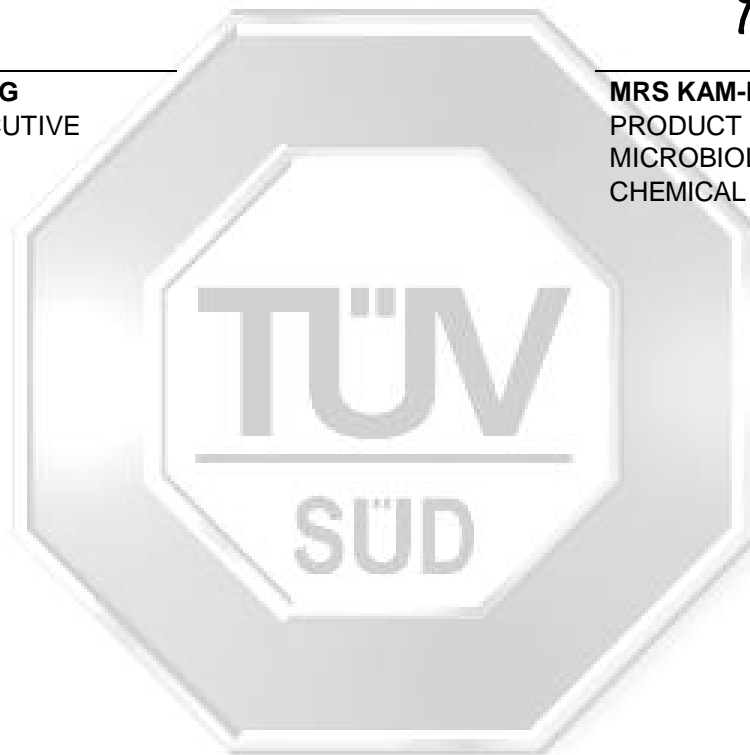
The above test results relate to the sample as received.

Handwritten signature of MS AW HWEE YING in black ink.

**MS AW HWEE YING**  
TECHNICAL EXECUTIVE

Handwritten signature of MRS KAM-LEONG YIN PHENG in black ink.

**MRS KAM-LEONG YIN PHENG**  
PRODUCT MANAGER  
MICROBIOLOGY  
CHEMICAL & MATERIALS



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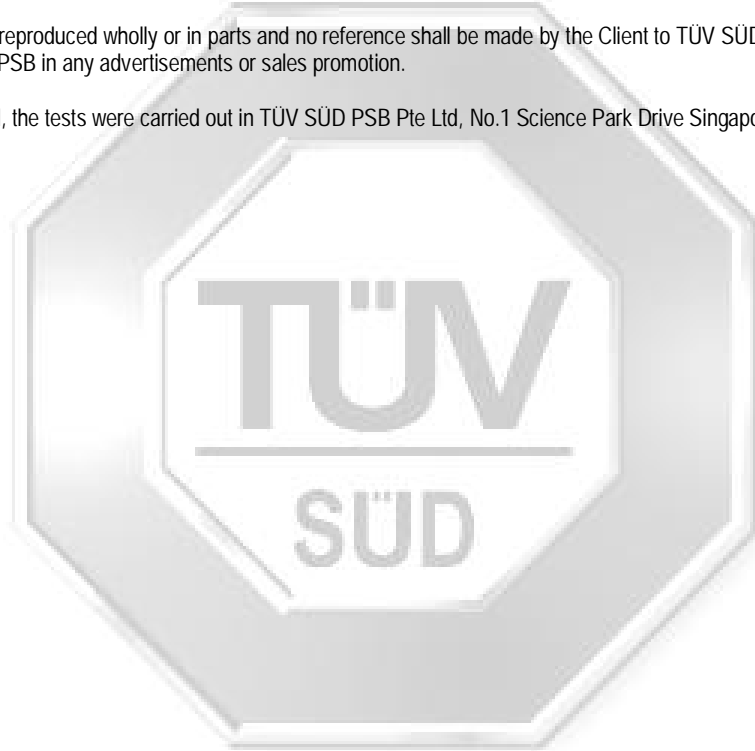


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July 2011



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Attn : Mr. Ng Joo Kok

## **SAMPLE SUBMISSION DATE/ TEST DATE**

20 Dec 2011/ 21 Dec 2011

## **DESCRIPTION OF SAMPLE**

2 coated and uncoated sample panels were submitted and labelled as below:

1. Sample 1 – 12 : Uncoated
2. Sample 25 – 30 : Coated with alcohol wipes wiping 10 times

## **METHOD OF TEST**

JIS Z 2801 : 2000

"Antimicrobial products – Test for antimicrobial activity and efficacy".

The test microorganisms used were :

*Escherichia coli* (ATCC 8739)  
*Staphylococcus aureus* (ATCC 6538P)

All sample panels were exposed under fluorescence day light for 24 hours during the exposure period.



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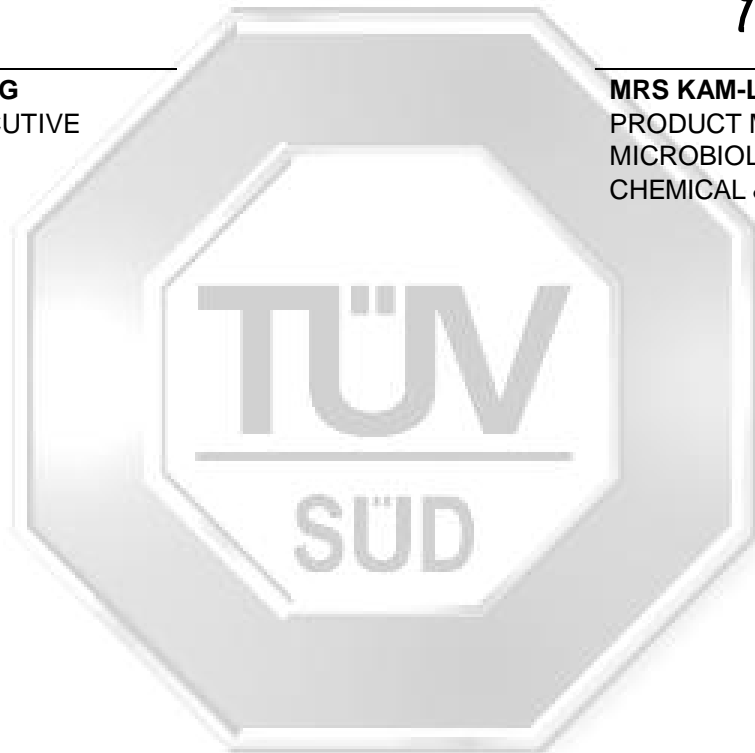
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