380 Umbilo Road, Glenwood, Durban, 4001 | P.O. Box 4618, Durban 4000, Republic of South Africa
Telephone: +27(0) 31 2051216, +27(0) 31 2061390 | Fax2email: +27(0) 88 031 2060518 | mobile: 082 953 7909
Email: info@biosciencetechnologies.com | website: www.biosciencetechnologies.com

CERTIFICATE OF ANALYSIS

Our Certificate number: *B15638* *Our Quotation number:*
Your reference number:

One set of plasterboard received on 21 August 2015 at 15h15, ***sampled by yourselves***.

Sample Markings:	Nanosterile
Sample Appearance:	Square block plasterboard painted and coated with nanosterile product
Condition of sample as received:	Satisfactory
Date testing commenced:	26 August 2015
Date testing completed	18 September 2015

1. Active ingredients were said to be

Titanium oxide nanoparticles

Figure 1: Plasterboard coated with nanoparticles as received

2. Testing Procedure:

Procedure A: The coating from half of the board was removed (duplicates were prepared). A known quantity of microorganisms was applied to the surface by spraying the microorganisms on both the coated and non-coated plasterboard. The board was allowed to stand under a UV-A Lamp for the specified time. One total plate count 3M petrifilm was thereafter placed on the inoculated surface of one of the coated and non-coated plasterboard to enumerate the surviving bacteria. One yeast and mould 3M petrifilm was placed on the inoculated surface of the other coated and non-coated plasterboard to enumerate the surviving yeast. The petrifilm was divided into two by drawing a line down the center thereby simultaneously collecting bacteria from the coated and non-coated sections.
Procedure B: A known quantity of bacteria was applied to the surface by pipetting the bacteria onto the coated plasterboard and allowed to stand for a specified time. Total plate count 3M petrifilm was thereafter placed on the surface of the coated plasterboard to enumerate the surviving bacteria.

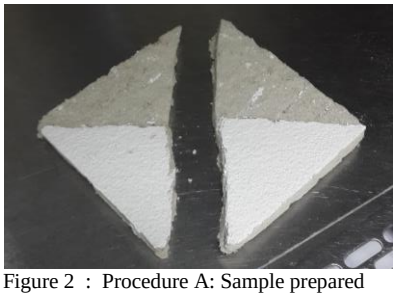

Figure 2 : Procedure A: Sample prepared

Figure 3: Procedure A: Sample sprayed with microorganisms

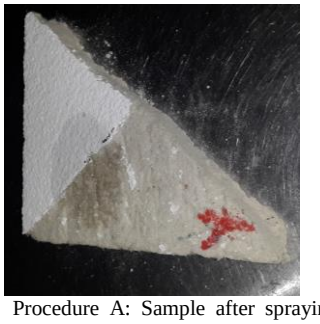

Figure 4: Procedure A: Sample after spraying with microorganisms

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Directors: VA Soffiantini, C.Chem, Pr.Sci, B.Com (Managing Director); CD Soffiantini

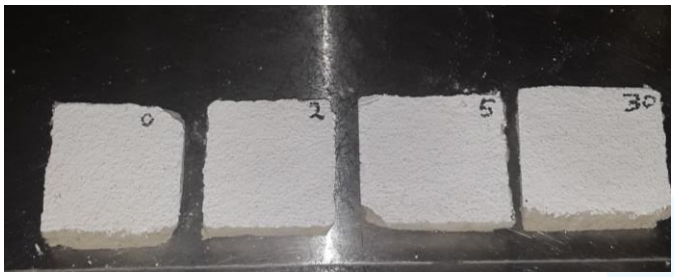

Figure 5: Procedure B: Sample labelled and ready to be tested

Figure 6: Procedure B: Sample inoculated with bacteria

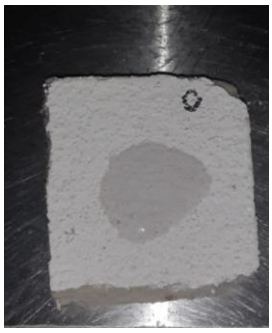

Figure 7: Procedure B: Sample after inoculation

2.1. The conditions of the test were as follows:

I. a) For Procedure A: challenge organisms used for this trial was an equal concentration of *Staphylococcus aureus* ATCC 6538 (American Type Culture Collection), and *Escherichia coli* ATCC 8739 and *Aspergillus niger* ATCC 16404.

II. b) For Procedure B: challenge organisms used for this trial was a 50:50 concentration *Staphylococcus aureus* ATCC 6538 (American Type Culture Collection), and *Escherichia coli* ATCC 8739.

III. a) for procedure A, the contact times were 0, 2 and 24 hours at 22ºC ±1ºC.

b) for procedure B, the contact times were 0, 2, 5 and 30 minutes at 22ºC ±1ºC

IV. a) the lighting used for procedure A was a 365nm UV-A lamp and had a lux of 384.2 as measured using the MajorTech MT940 Lux meter

b) the normal lighting used for procedure B had a lux of 21.1 as measured using the MajorTech MT940 Lux meter

VI. 3M Petrifilm : Yeast and Mould, catalogue number 6407/6417/6445, lot number 2016-09KH and Aerobic Count, catalogue number 6400/6406/6443, lot number 2017-01TI was used.

3. Test Results:

3.1. The results for **Procedure A** (coated portion) showed the following

Initial organism suspension (cfu/ml)	After 0 minutes contact time	After 2 hours contact time	After 24 hours contact time	% Kill rate After 24 hours exposure
$9x10^7$	TNTC	80 cfu	Nil cfu	99.9

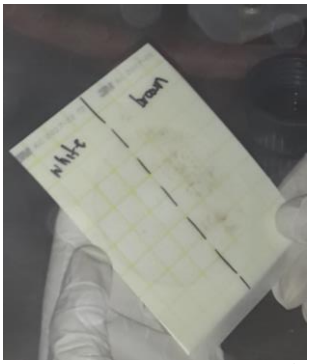

Figure 8: Procedure A: Results after 24 hours exposure

3.2. The results for **Procedure B** showed the following

Initial organism suspension (cfu/ml)	After 0 minutes contact time	After 2 minutes contact time	After 5 minutes contact time	After 30 minutes contact time	% Kill rate at 30 minutes exposure
$32x10^7$	TNTC	TNTC	2904 cfu	528 cfu	99.9

Where TNTC indicates that the bacteria were too numerous to count. Due to the nature of this test, an exact circle on the petrifilm was not achieved.

Figure 9: Procedure B: Results after 5 minutes exposure

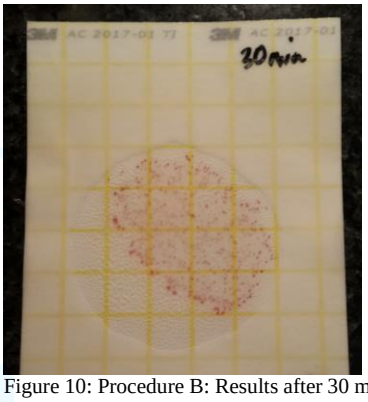

Figure 10: Procedure B: Results after 30 minutes exposure

4. Comments:

All laboratory tests carried out as per client's instructions, e-mail dated 13/08/2015 and Agreement of Service form dated 14 August 2015 and

5. Opinion

Based on the above microbiological results only, it is our opinion that the sample is able to achieve a better than log 3 reduction within 25 minutes and is able to achieve a log 7 reduction when subjected to UV-A light for a minimum of 2 hours under stated conditions of test.

Note: Only original reports are considered official. Electronic documents are transmitted "WITHOUT PREJUDICE"

Signed.....VAS.....this 18th day of September 2015

V A Soffiantini, Chartered Chemist;
C.Chem.,M.R.S.C.,Pr.Sci.Nat.

……SG…..……
S. Gaffoor; Cert. Sci. Nat
Nat. Dip. Biotechnology
Quality Assurance Manager
Technical Signatory

……ME…..……
M. Ellard; BSc Microbiology & Biochemist
Microbiologist

To: **Nanosterile (Pty) Ltd**
B S Timravy 949/9,
Zilina
Slovakia

Requested by and Reported to: Miroslav Ondrus
Email: ondrus@nanosterile.eu