

SteriTouch®

Report reference: 1932GEN

Client: XXXXXX

Material tested: Painted Samples - Aged 5 Years by SATRA

Evaluation of the antimicrobial performance of Emulsion paint which has been artificially aged.

The testing was co-ordinated by SteriTouch Ltd, but conducted by independent laboratories.

Artificial ageing was carried out by SATRA Technology, UK.
www.satra.co.uk

Antimicrobial testing was carried out by Kyoto Biseibutsu Kenkyusyo (Kyoto Institute of Microbiology), Japan
www.kyobiken.or.jp

Test samples

Where possible, all test materials are taken from samples of the actual product. Samples typically measure 50mm x 50mm, as specified by the JIS Z 2801:2012 method, although where this is impractical it is permissible to use smaller samples with the method being modified accordingly.

Sample Ref.	Description
Control	Untreated polyethylene film
51860 A	Zero VOC Emulsion - Aged 5 Years
51860 B	Zero VOC Emulsion - Aged 5 Years
51860 C	Zero VOC Emulsion - Aged 5 Years
51861 A	Zero VOC Silk Emulsion - Aged 5 Years
51861 B	Zero VOC Silk Emulsion - Aged 5 Years
51861 C	Zero VOC Silk Emulsion - Aged 5 Years

Test method

The samples were tested according to the JIS Z 2801:2012 method, briefly summarised as follows;

Each test sample is inoculated with a suspension of the test organism (for example, MRSA). The inoculum is held in contact with the test sample using a sterile polyethylene film. All test samples are inoculated in triplicate, with an additional three replicates of the control.

The bacterial population on three control replicates is evaluated immediately following inoculation. This is assumed to be the initial population on all test samples (i.e. the population at zero hours).

The remaining samples are incubated for the test period (24 Hours) at 35°C, at which time the bacterial population is evaluated.

Signed:



N. J. Corlett, Director

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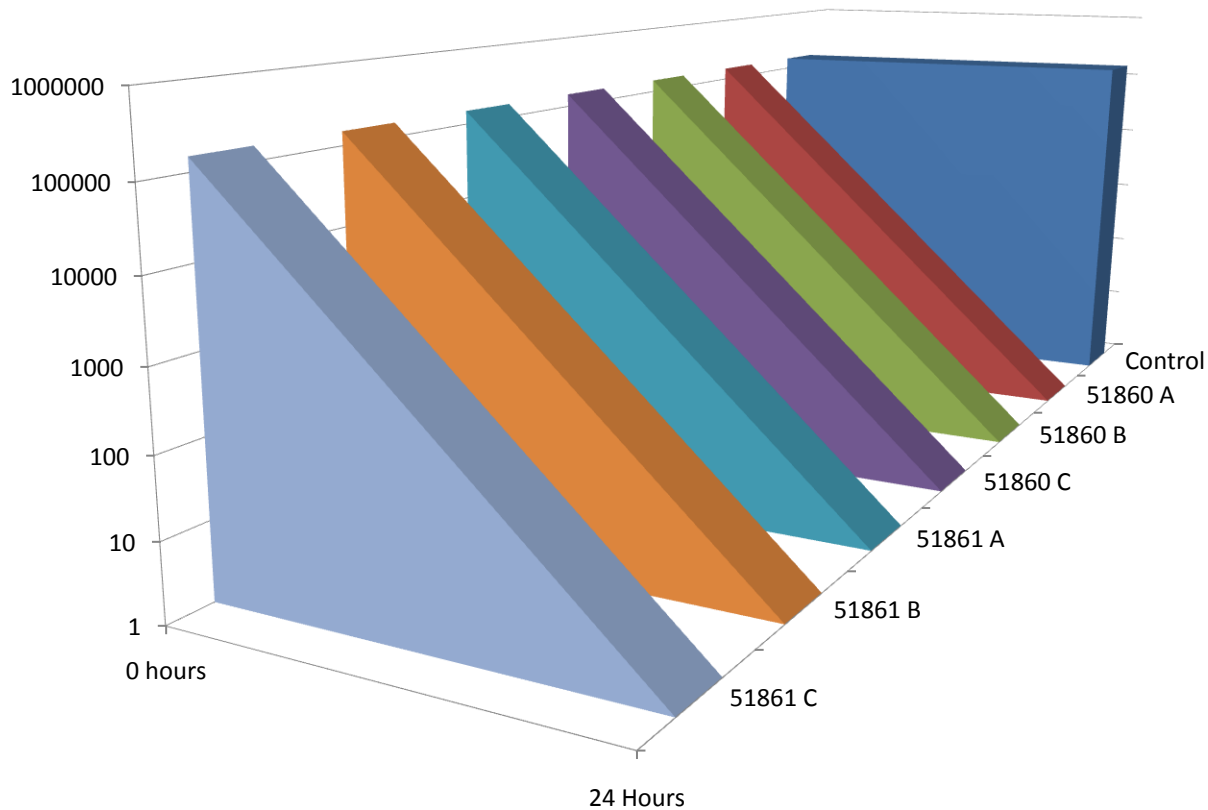


Results - MRSA tested at 35°C

Sample	Description	Colony Forming Units (CFU)		Comparison with Control
		0 hours	24 Hours	
Control	Untreated polyethylene film	150000	160000	N/A
51860 A	Zero VOC Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction
51860 B	Zero VOC Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction
51860 C	Zero VOC Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction
51861 A	Zero VOC Silk Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction
51861 B	Zero VOC Silk Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction
51861 C	Zero VOC Silk Emulsion - Aged 5 Years	150000	<10	>99.9994% reduction

All samples are given a unique reference number in order to ensure traceability. These references are found in the 'Sample' column of the above table e.g. '51860A'. The Client's reference or description is in the 'Description' column e.g. 'Zero VOC Emulsion - Aged 5 Years'.

NOTE: Laboratory certificates will use the unique reference numbers e.g. '51860A'. The above table enables easy cross reference with the Client's description.

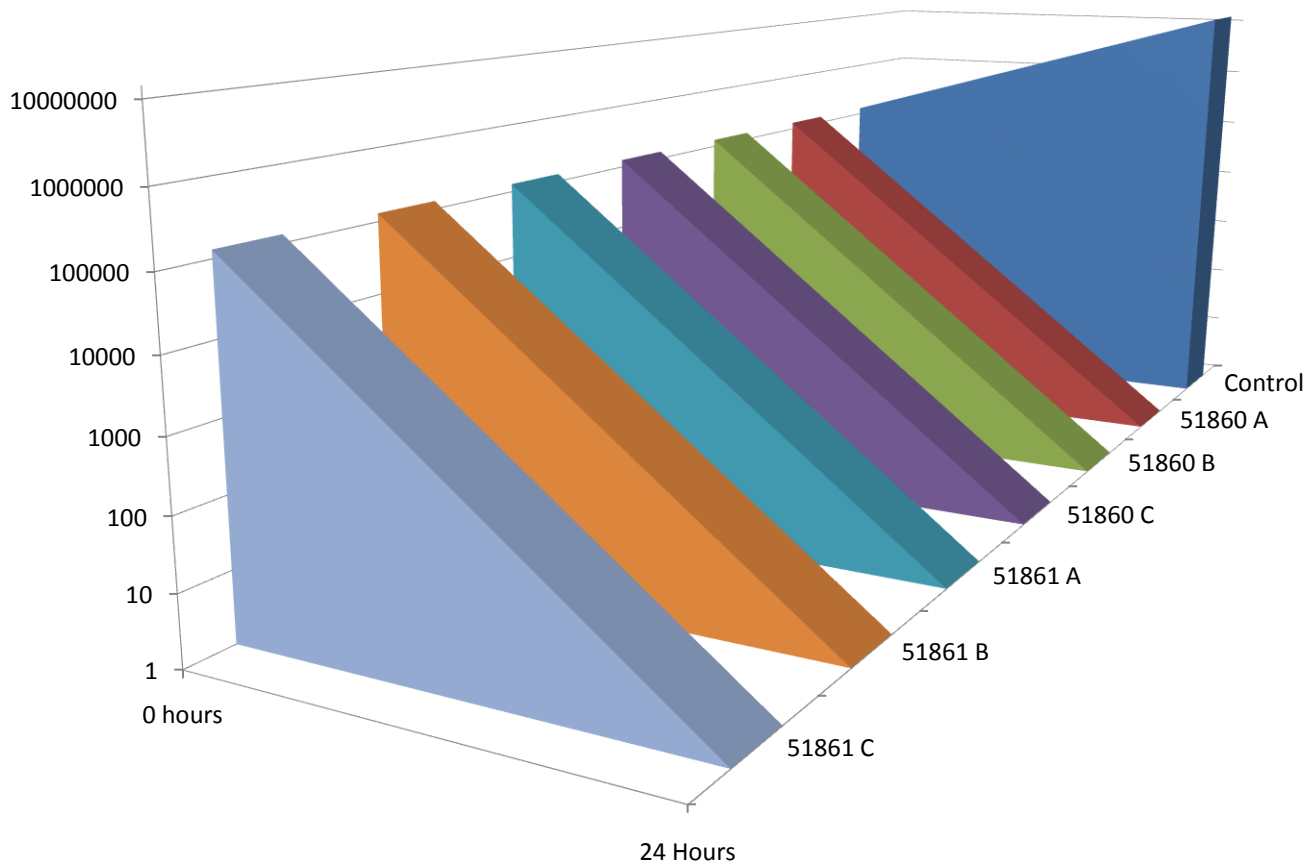


Results - E. coli tested at 35°C

Sample	Description	Colony Forming Units (CFU)		Comparison with Control
		0 hours	24 Hours	
Control	Untreated polyethylene film	130000	13000000	N/A
51860 A	Zero VOC Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction
51860 B	Zero VOC Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction
51860 C	Zero VOC Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction
51861 A	Zero VOC Silk Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction
51861 B	Zero VOC Silk Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction
51861 C	Zero VOC Silk Emulsion - Aged 5 Years	130000	<10	>99.99999% reduction

All samples are given a unique reference number in order to ensure traceability. These references are found in the 'Sample' column of the above table e.g. '51860A'. The Client's reference or description is in the 'Description' column e.g. 'Zero VOC Emulsion - Aged 5 Years'.

NOTE: Laboratory certificates will use the unique reference numbers e.g. '51860A'. The above table enables easy cross reference with the Client's description.



Certificate of Examination Report

Requested by: SteriTouch Ltd.

Date of Report : 20-Dec-13

Received : 02-Dec-13

KYOTO BISEIBUTSU KENKYUSYO

16-2 KUBOCHOU KAMIKASAN YAMASHINA-KU

KYOTO 607-8464 JAPAN

(PHONE) 075-593-3320

(FAX) 075-501-7110



Examiner: *Juniko Sano*

1.Submitted Sample : 51860

2.Object : Examination of antimicrobial Power for Submitted Sample

3.Test Procedure : An antimicrobial power was determined by "Test for antimicrobial activity and efficacy" of JIS Z 2801. The bacterial suspension was then to make an initial count of 10^5 CFU/ml with a 1/500 Nutrient Broth. The bacterial suspension (0.4mL) was onto a sample and film cover on the bacterial suspension. The samples were incubated at 35°C. After 24hours, the number of live bacteria was counted.

4.Test bacteria : *Escherichia coli*

NBRC-3972

Methicillin resistant *Staphylococcus aureus*

IID-1677

5.Medium : Nutrient Broth (EIKEN)

Standard Method Agar (EIKEN)

6.Examination Result :

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.3×10^5	<10	<10	<10	<10
<i>MRSA</i>	1.5×10^5	<10	<10	<10	<10

Examination Result (control)

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.3×10^5	1.6×10^7	1.4×10^7	1.0×10^7	1.3×10^7
<i>MRSA</i>	1.5×10^5	1.9×10^5	1.2×10^5	1.6×10^5	1.6×10^5

<10:non detect

unit: CFU/Sample

Certificate of Examination Report

Requested by: SteriTouch Ltd.

Date of Report : 20-Dec-13
Received : 02-Dec-13

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16-2 KUBOCHOU KAMIKASAN YAMASHINA-KU
KYOTO 607-8464 JAPAN
(PHONE) 075-593-3320
(FAX) 075-501-7110



Examiner: *Juniko Sano*

- 1.Submitted Sample : 51861
- 2.Object : Examination of antimicrobial Power for Submitted Sample
- 3.Test Procedure : An antimicrobial power was determined by "Test for antimicrobial activity and efficacy" of JIS Z 2801.The bacterial suspension was then to make an initial count of 10^5 CFU/ml with a 1/500 Nutrient Broth.The bacterial suspension (0.4mL) was onto a sample and film cover on the bacterial suspension.The samples were incubated at 35°C .After 24hours, the number of live bacteria was counted.
- 4.Test bacteria : *Escherichia coli* NBRC-3972
Methicillin resistant *Staphylococcus aureus* IID-1677
- 5.Medium : Nutrient Broth (EIKEN)
Standard Method Agar (EIKEN)

6.Examination Result :

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.3×10^5	<10	<10	<10	<10
<i>MRSA</i>	1.5×10^5	<10	<10	<10	<10

Examination Result (control)

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.3×10^5	1.6×10^7	1.4×10^7	1.0×10^7	1.3×10^7
<i>MRSA</i>	1.5×10^5	1.9×10^5	1.2×10^5	1.6×10^5	1.6×10^5

<10:non detect

unit: CFU/Sample

Explanation of laboratory certificate layout

No. 8274 -2

Certificate of Examination Report

Requested by: SteriTouch Ltd.

Date of Report : 15-Nov-13
 Received : 25-Oct-13

KYOTO BISEIBUTSU KENKYUSYO
 16-2 KUBOCHOU KAMIKASAN YAMASHIRO-KU
 KYOTO 607-8464 JAPAN
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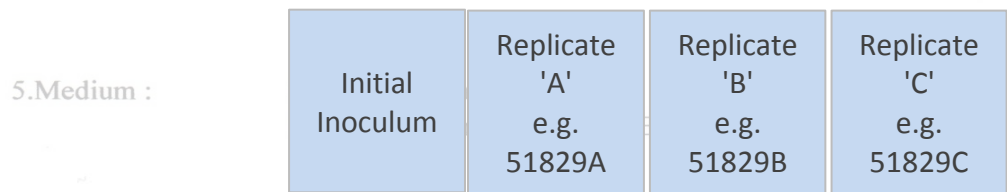
Examiner: *Junko Sano*

1.Submitted Sample : 51829 ← SteriTouch sample reference number

2.Object : Examination of antimicrobial Power for Submitted Sample

3.Test Procedure : An antimicrobial power was determined by "Test for antimicrobial activity and efficacy" of JIS Z 2801. The bacterial suspension was then to make an initial count of 10⁵ CFU/ml with a 1/500 Nutrient Broth. The bacterial suspension (0.4mL) was onto a sample and film cover on the bacterial suspension. The samples were incubated at 35°C. After 24hours, the number of live bacteria was counted.

4.Test bacteria : *Escherichia coli* NBRC-3972
 Methicillin resistant *Staphylococcus aureus* IID-1677



6.Examination Result :

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.2×10 ⁵	<10	<10	<10	<10
<i>MRSA</i>	1.0×10 ⁵	<10	<10	<10	<10

Examination Result (control)

Test bacteria	Change in Bacterial Count Over Time				
	0hr(initial count)	24hrs-A	24hrs-B	24hrs-C	average
<i>E.coli</i>	1.2×10 ⁵	1.3×10 ⁷	1.3×10 ⁷	1.6×10 ⁷	1.4×10 ⁷
<i>MRSA</i>	1.0×10 ⁵	2.3×10 ⁵	2.4×10 ⁵	2.7×10 ⁵	2.5×10 ⁵

<10:non detect

unit: CFU/Sample

Average control results

Firm: SteriTouch Ltd
Unit 15 Rosehayworth Business Park
Abertillery
Gwent
NP13 1SP

Job reference: FWT0217073/1332/A

Date: 7 January 2014

Samples received: 6 August 2013

Attention of: Huw Durban

Testing completed: ONGOING

INTERIM REPORT

Subject: Ageing of two material for a period of 30 weeks (10 years)

Conditions of Issue:

This report may be forwarded to other parties provided that it is not changed in any way. It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.

Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

Tests marked † fall outside the UKAS Accreditation Schedule for SATRA. All interpretations of results of such tests and the comments based upon them are outside the scope of UKAS accreditation and are based on current SATRA knowledge.

A satisfactory test report in no way implies that the product tested is approved by SATRA and no warranty is given as to the performance of the product tested. SATRA shall not be liable for any subsequent loss or damage incurred by the customer as a result of information supplied in the report.

Please note uncertainty of measurement has not been applied to the results in this report. SATRA uncertainty of measurement values are available on request.

Report signed by: Matthew Holt
Materials Technologist
Materials - Testing
On behalf of SATRA Technology Centre Ltd

AGEING OF TWO MATERIAL FOR A PERIOD OF 30 WEEKS (10 YEARS)

SAMPLES SUBMITTED

Two sets of painted panels referenced by the customer as:

Sample 1 - [REDACTED] SG Emulsion [REDACTED]
 Sample 2 - [REDACTED] Silk Emulsion [REDACTED]

TESTS CARRIED OUT

ISO 188:2011 Accelerated ageing and heat resistance tests

TEST CONDITIONS

Samples have been stored in an air circulating oven controlled at 60°C ± 1°C.

Exposure duration	Test started	Test finished	Exposure equivalent
3 weeks	07/08/2013	28/08/2013	1 year
10 weeks		15/10/2013	3 years
15 weeks		20/11/2013	5 years
21 weeks		03/01/2014	7 years
30 weeks		ONGOING	10 years

RESULTS

After each ageing period the samples have been returned to the customer for further investigation