

Report reference: 1950

Material tested: Painted Samples - Aged 10 Years by SATRA

Evaluation of the antimicrobial performance of samples containing antimicrobial additives. All testing is conducted by an independent laboratory using the ISO 22196 / JIS Z 2801:2000 test method.

Introduction

This report details the analysis carried out on the test samples, including an overview of the test method, the test results, an interpretation of those results and copies of the associated laboratory certificates.

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 2801:2000 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
A1	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA
A2	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA
A3	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA
B1	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA
B2	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA
B3	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA

Test method

The samples were tested according to the JIS Z 2801:2000 method, briefly summarised as follows;

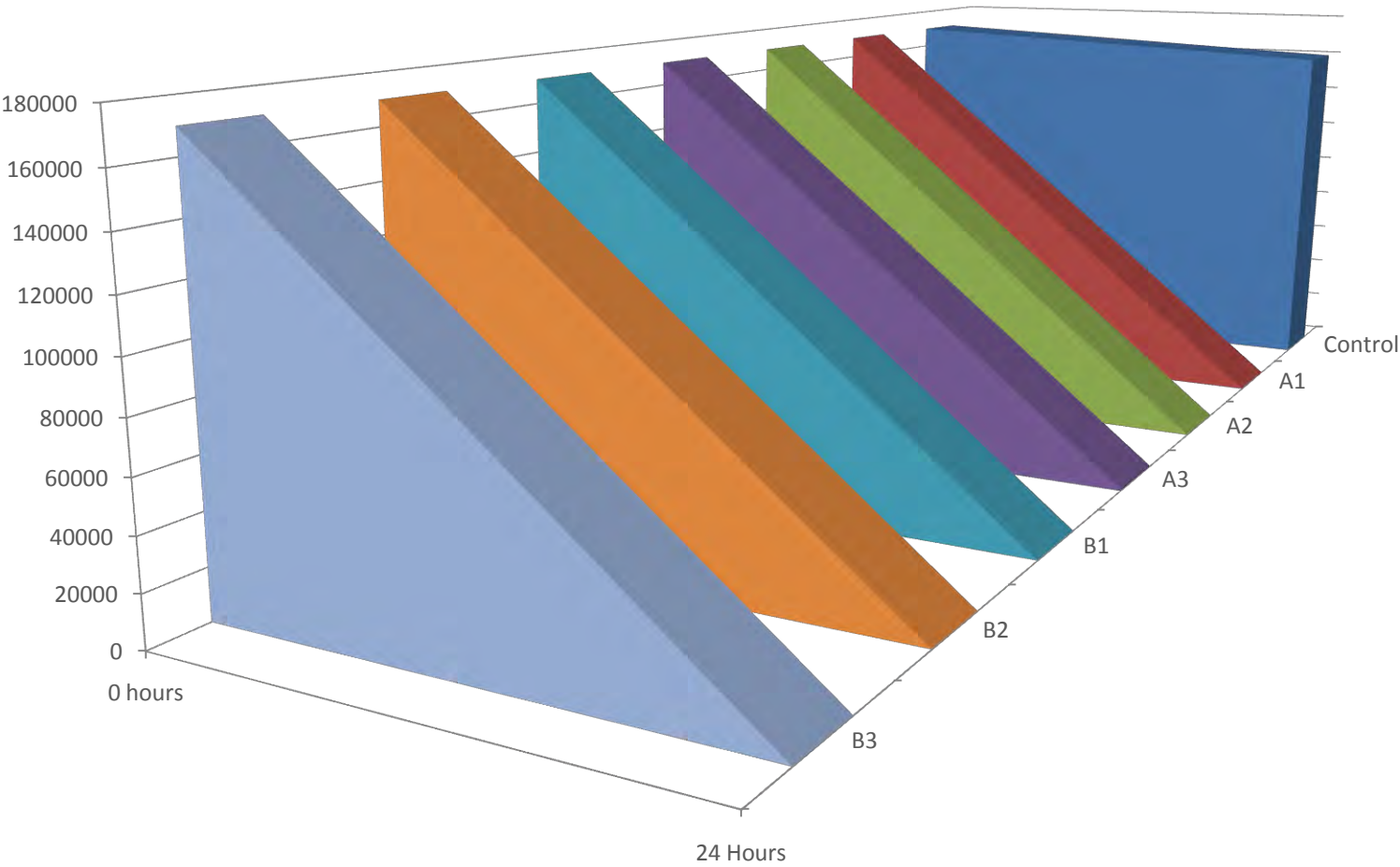
Each test sample is inoculated with a suspension of the test organism (for example, MRSA). The inoculum is held in contact with the test sample using a sterile polyethylene film. All test samples are inoculated in triplicate, with an additional three replicates of the control.

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.

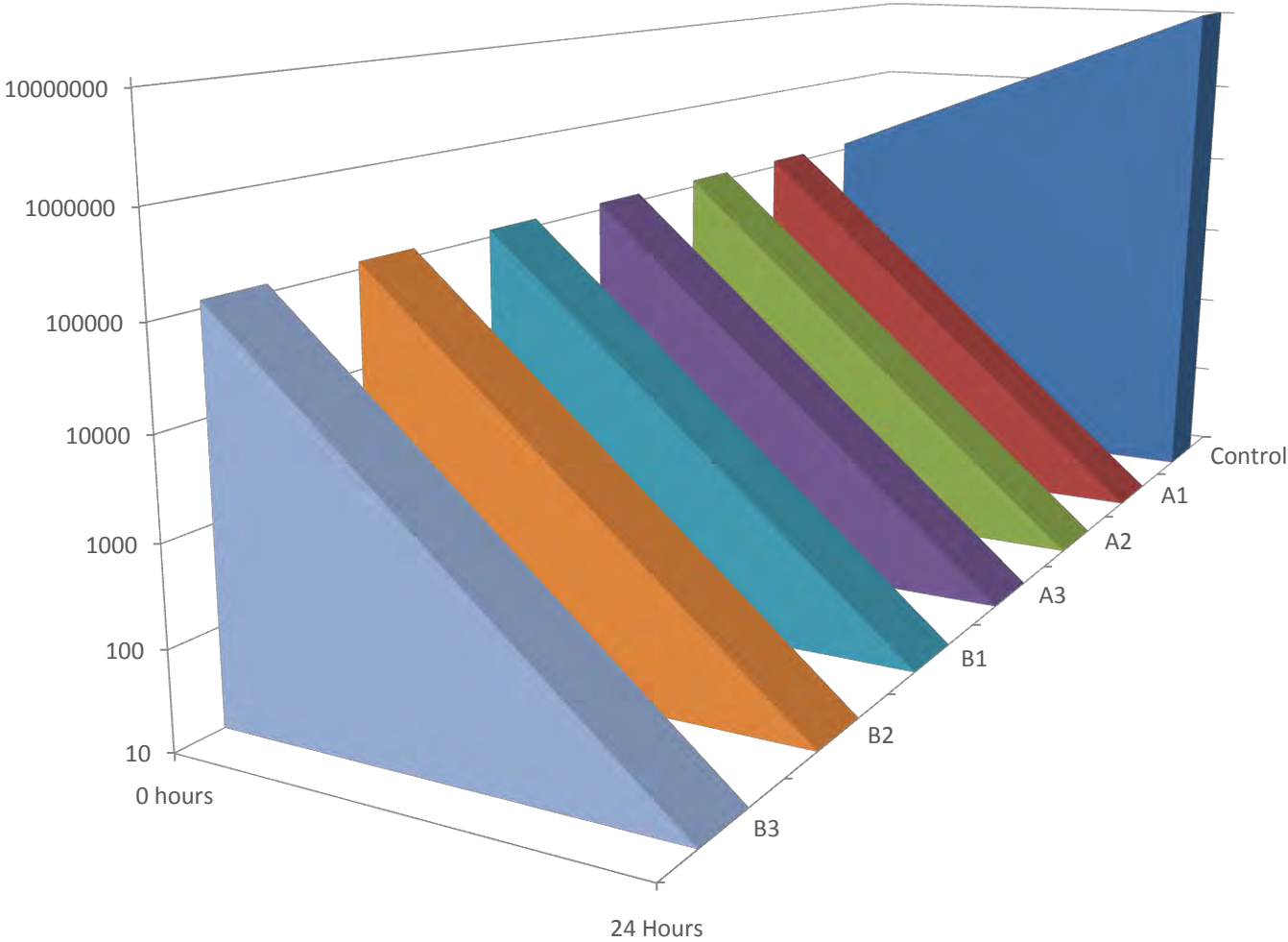
Results - MRSA tested at 35°C

Sample		Colony Forming Units (CFU)		Comparison with Control
		0 hours	24 Hours	
Control	Untreated polyethylene film	170000	160000	N/A
A1	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	110	99.93% reduction
A2	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	<10	>99.994% reduction
A3	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	910	99.4% reduction
B1	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	<10	>99.994% reduction
B2	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	<10	>99.994% reduction
B3	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	170000	<10	>99.994% reduction



Results - E. coli tested at 35°C

Sample		Colony Forming Units (CFU)		Comparison with Control
		0 hours	24 Hours	
Control	Untreated polyethylene film	120000	11000000	N/A
A1	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction
A2	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction
A3	White Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction
B1	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction
B2	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction
B3	White Silk Emulsion with ST1114 @ 1% - Aged 10 Years by SATRA	120000	<10	>99.99991% reduction



Certificate of Examination Report

Requested by: SteriTouch Ltd.

Date of Report : 28-Mar-14

Received : 14-Mar-14

KYOTO BISEIBUTSU KENKYUSYO

16-2 KUBOCHOU KAMIKASAN YAMASHINA-KU

KYOTO 607-8464 JAPAN

(PHONE) 075-593-3320

(FAX) 075-501-7110

Examiner: *Takashi Sato*

1.Submitted Sample : XXXXXXXXXX Emulsion XXXXXXXXXX -Aged 10 Years by SATRA

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 24 hours, 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>	1.2×10^5	<10	<10	<10	<10
<i>MRSA</i>	1.7×10^5	1.1×10^2	<10	9.1×10^2	

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	1.0×10^7	1.0×10^7	1.2×10^7	1.1×10^7
<i>MRSA</i>	1.7×10^5	2.0×10^5	1.4×10^5	1.3×10^5	1.6×10^5

<10:non detect

unit: CFU/Sample

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KYOTO 607-8464 JAPAN

(PHONE) 075-593-3320

(FAX) 075-501-7110

Examiner: *Tomoko Sano*

1.Submitted Sample : XXXXXXXXXX Silk Emulsion XXXXXXXXXX Aged 10 Years by SATRA

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 24 hours, the number of live bacteria was counted.

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<i>E.coli</i>	1.2×10^5	<10	<10	<10	<10
<i>MRSA</i>	1.7×10^5	<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	1.0×10^7	1.0×10^7	1.2×10^7	1.1×10^7
<i>MRSA</i>	1.7×10^5	2.0×10^5	1.4×10^5	1.3×10^5	1.6×10^5

<10:non detect

unit: CFU/Sample

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

Job reference: FWT0217073/1332/A

Date: 7 March 2014

Samples received: 6 August 2013

Attention of: Huw Durban

Testing completed: 6 March 2014

TECHNICAL SERVICES REPORT

Subject: Ageing of two materials 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 MATERIALS 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] *51742*
Sample 2 - [REDACTED] Silk Emulsion [REDACTED] *58901*

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 $60^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

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		06/03/2014	10 years

RESULTS

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