



28 August 2007

Messrs. Sides spa – Decoral

ISHIZUKA GLASS CO., LTD.
Advanced Glass Company

REPORT ON ANTI-MICROBIAL TEST RESULT

1. Sample:

PU Powder Coated Plates

No.	Sample
1.	FP 456 / 1
2.	FP 456 / 2
3.	FP 456 / 3

2. Outline of test:

The test was executed in according with "JIS Z 2801."

<Bacteria used for test>

Escherichiacoli NBRC 3972

Staphylococcus aureus NBRC 12732

<Density of Nutrient Broth>

1/50 NB

<Incubation Time>

5 Hours

3. Test result:

Table 1. Test result of Anti-microbial effect against *Escherichia coli*

Sample	Number of living bacteria		Antimicrobial activity value against Control	Reduction %
	At beginning	After 5 hours		
1. FP 456 / 1	2.4×10^5	$<1 \times 10^2$	>3.8	>99.987
2. FP 456 / 2	2.4×10^5	$<1 \times 10^2$	>3.8	>99.987
3. FP 456 / 3	2.4×10^5	$<1 \times 10^2$	>3.8	>99.987
Control (Film only)	2.4×10^5	7.7×10^5		

Table 2. Test result of Anti-microbial effect against *Staphylococcus aureus*

Sample	Number of living bacteria		Antimicrobial activity value against Control	Reduction %
	At beginning	After 5 hours		
1. FP 456 / 1	2.0×10^5	$<1 \times 10^2$	>3.9	>99.987
2. FP 456 / 2	2.0×10^5	$<1 \times 10^2$	>3.9	>99.987
3. FP 456 / 3	2.0×10^5	$<1 \times 10^2$	>3.9	>99.987
Control (Film only)	2.0×10^5	8.0×10^5		



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4. Consideration:

Sample 1, 2, and 3 had shown antimicrobial efficacy against control sample.

ISHIZUKA GLASS CO., LTD.

Hajime Motomatsu
MANAGER



15 January 2008

Messrs. Sides spa – Decoral srl.

ISHIZUKA GLASS CO., LTD.
Advanced Glass Company**REPORT ON ANTI-MICROBIAL TEST RESULT****1. Sample:**

Powder Coated Plates

No.	Sample
1.	DS413 (Blank)
2.	FP479 / 3 (Ionpure)
3.	DS733 (Sample 1)
4.	FP479 / 1 (Ionpure)

2. Outline of test:

The test was executed in according with "JIS Z 2801."

<Bacteria used for test>

Escherichiacoli NBRC 3972*Staphylococcus aureus* NBRC 12732

<Heat Treatment>

Heat Treatment at 100C for 13 days in prior to antimicrobial testing

3. Test result:Table 1. Test result of Anti-microbial effect against *Escherichia coli* without heat treatment

Sample	Number of living bacteria		Antimicrobial activity value against each Blank	Reduction %
	At beginning	After 24 hours		
1. DS413 (Blank)	9.6×10^4	2.2×10^7	-----	-----
2. FP479 / 3 (Ionpure)	9.6×10^4	$<1 \times 10^2$	>5.3	>99.999
3. DS733 (Sample 1)	9.6×10^4	1.8×10^7	-----	-----
4. FP479 / 1 (Ionpure)	9.6×10^4	$<1 \times 10^2$	>5.3	>99.999
Control (Film only)	9.6×10^4	2.7×10^7		

Table 2. Test result of Anti-microbial effect against *Staphylococcus aureus* without heat treatment

Sample	Number of living bacteria		Antimicrobial activity value against each Blank	Reduction %
	At beginning	After 24 hours		
1. DS413 (Blank)	9.0×10^4	2.4×10^6	-----	-----
2. FP479 / 3 (Ionpure)	9.0×10^4	$<1 \times 10^2$	>4.3	>99.995
3. DS733 (Sample 1)	9.0×10^4	1.2×10^6	-----	-----
4. FP479 / 1 (Ionpure)	9.0×10^4	$<1 \times 10^2$	>4.0	>99.991
Control (Film only)	9.0×10^4	1.4×10^6		



Table 3. Test result of Anti-microbial effect against *Escherichia coli* after heat treatment

Sample	Number of living bacteria		Antimicrobial activity value against each Blank	Reduction %
	At beginning	After 24 hours		
1. DS413 (Blank)	9.6×10^4	2.1×10^7	-----	-----
2. FP479 / 3 (Iopure)	9.6×10^4	$<1 \times 10^2$	>5.3	>99.999
3. DS733 (Sample 1)	9.6×10^4	2.0×10^7	-----	-----
4. FP479 / 1 (Iopure)	9.6×10^4	$<1 \times 10^2$	>5.3	>99.999
Control (Film only)	9.6×10^4	2.7×10^7		

Table 4. Test result of Anti-microbial effect against *Staphylococcus aureus* after heat treatment

Sample	Number of living bacteria		Antimicrobial activity value against each Blank	Reduction %
	At beginning	After 24 hours		
1. DS413 (Blank)	9.0×10^4	1.6×10^6	-----	-----
2. FP479 / 3 (Iopure)	9.0×10^4	$<1 \times 10^2$	>4.2	>99.993
3. DS733 (Sample 1)	9.0×10^4	1.6×10^6	-----	-----
4. FP479 / 1 (Iopure)	9.0×10^4	$<1 \times 10^2$	>4.2	>99.993
Control (Film only)	9.0×10^4	1.4×10^6		

4. Consideration:

Sample 2 and 4 had shown stable antimicrobial efficacy under the circumstance of with and without heat treatment as the reduction percentage exceeded 99.9%. Heat treatment of 100C for 13 days was given to sample in prior to antimicrobial testing in order to simulate 10 years of usage.

ISHIZUKA GLASS CO., LTD.

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