ALcontrol Laboratories

Certificate of Analysis

European Copper Institute
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Test Date: 25.3.2014
Sample: No.7
Sample Details: CuZn30

Method

Alcontrol Test Method BP51.3 for the Efficacy of Non Porous Surfaces as a Sanitizer**,** based upon EPA Method for Efficacy of Copper Alloy Surfaces as a Sanitizer.

Experimental Design

A film of test organism cells (MRSA NCTC13143) applied onto a sterile carrier of the test material was exposed under specific exposure conditions. Following this, carriers were neutralised and assayed for survivors.

The material under test shall demonstrate a greater than or equal to (≥) 99.9% (≥3.00 Log_{10} or ≥10^3) reduction in Colony Forming Units (CFU) within the specified time to have passed this test.

Appropriate quality control assessments were performed alongside the test.

Table 1. Quality Control Results

Control	Status
Organism purity control	Passed
Organic soil load sterility control	Passed
Neutraliser sterility control	Passed
Carrier sterility control	Passed
Neutraliser confirmation results	Passed
Antibiotic Resistance of MRSA NCTC 13143	Passed

Testing conditions	Status
Exposure temperature	22 ±1°C
Exposure time	120 ±5 min
Soil load	5% V/V Fetal bovine serum with 0.01% m/v Triton X-100
Neutraliser used in analysis	Letheen broth
Plating media	TSA

Table 2. Test results for surviving CFU MRSA/plate per carrier

Carrier type	Carrier	CFU/20µl per dilution in duplicate				
		10^{-0}	10^{-1}	10^{-2}	10^{-3}	10^{-4}
100% copper control	1	0,0	NA	NA	NA	NA
	2	0,0	NA	NA	NA	NA
	3	0,0	NA	NA	NA	NA
	4	0,0	NA	NA	NA	NA
	5	0,0	NA	NA	NA	NA
Stainless steel 304L control	1	NA	NA	5,2	0,1	0,0
	2	NA	NA	10,5	0,0	0,0
	3	NA	NA	12,10	3,0	0,0
	4	NA	NA	3,3	0,0	0,0
	5	NA	NA	12,7	1,2	0,0
Sample 7	1	0,0	0,0	0,0	0,0	NA
	2	0,0	0,0	0,0	0,0	NA
	3	1,0	0,0	0,0	0,0	NA
	4	0,0	0,0	0,0	0,0	NA
	5	1,1	0,0	0,0	0,0	NA

Table 3. Test results for calculated total surviving CFU MRSA per carrier

Carrier type	Carrier replicate	Calculated total number of surviving CFU				Carrier % Reduction MRSA vs Control 304L
		No.	Mean	Log_{10}	Log_{10} average	
100% copper control	1	<40	<40	<1.60	<1.60	>99.918
	2	<40		<1.60		
	3	<40		<1.60		
	4	<40		<1.60		
	5	<40		<1.60		
Stainless steel 304L control	1	$2.8x10^4$	$4.8x10^4$	4.45	4.69	-
	2	$6.0x10^4$		4.78		
	3	$8.8x10^4$		4.94		
	4	$2.4x10^4$		4.38		
	5	$7.6x10^4$		4.88		
Sample 7	1	<40	<40	<1.60	<1.60	>99.918
	2	<40		<1.60		
	3	<40		<1.60		
	4	<40		<1.60		
	5	<40		<1.60		

Test Outcome

Material CuZn30 (sample no.7) demonstrated a ≥99.9% (≥3.00 Log_{10}) reduction of Meticillin Resistant Staphylococcus aureus (MRSA) (NCTC 13143) following a two hour exposure under the test conditions and has **PASSED** the test requirement.

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