



Certificate of Analysis

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Client: Hygiene Technologies	Lab No: 2173335	SPV1
Contact: Jason Senior	Date Received: 09-May-2019	
C/- Hygiene Technologies	Date Reported: 23-May-2019	
PO Box 2366	Quote No: 98918	
Stortford Lodge	Order No: 52532	
Hastings 4153	Client Reference: Challenge testing	
	Submitted By: Jason Senior	

Sample Type: Food and Biologicals

Sample Name:	Opal Ethasan				
Lab Number:	2173335.1				
Disinfectant/Sanitizer Efficacy Testing	See attached report	-	-	-	-

Analyst's Comments

Appendix No.1 - Opal Ethasan challenge re Job 2173335

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Food and Biologicals

Test	Method Description	Default Detection Limit	Sample No
Disinfectant/Sanitizer Efficacy Testing	Analysed at Hill Laboratories - Microbiology; 101C Waterloo Road, Christchurch. Based on AOAC 960.09 Germicidal and Detergent Sanitizing Action of Disinfectants.	-	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

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Opal Ethasan Efficacy Trial

Jill Martin

Hill Laboratories

The method employed to carry out this testing was based on AOAC Official Method 960.09 (Germicidal and Detergent Sanitizing Action of Disinfectants).

The neutraliser buffer used was DE Neutralising Broth.

The organisms used were:

- *Escherichia coli*
- *Salmonella* Menston
- *Listeria monocytogenes*
- *Cronobacter sakazakii*

Numeric counts were performed after 60 seconds and 5 minutes contact time.

The sanitiser Opal Ethasan in this trial was supplied in a Ready-to-Use format.

The level of each organism was tested prior to addition to the test sample. The level of inoculum in cfu per mL is shown in Table 1.

Table 1:

Organism	Result (CFU/ml)	Theoretical result (CFU/ml)
<i>Escherichia coli</i>	7,800,000,000	78,000,000
<i>Salmonella</i> Menston	17,000,000,000	170,000,000
<i>Listeria monocytogenes</i>	6,900,000,000	69,000,000
<i>Cronobacter sakazakii</i>	13,000,000,000	130,000,000



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Number Controls were performed against the challenge organisms in hard water using a 60 second exposure time. Data is shown in Table 2.

Table 2:

Organism	CFU/mL of Control water	LOG of Control water
<i>Escherichia coli</i>	93,000,000	7.97
<i>Salmonella</i> Menston	140,000,000	8.15
<i>Listeria monocytogenes</i>	63,000,000	7.80
<i>Cronobacter sakazakii</i>	130,000,000	8.11

Results of the trial using 60 second contact time can be seen in Table 3.

Table 3:

Organism	Result (CFU/ml)	Result LOG	Log reduction	% reduction
<i>Escherichia coli</i>	<100	<2	>5.97	>99.999
<i>Salmonella</i> Menston	<100	<2	>6.15	>99.999
<i>Listeria monocytogenes</i>	<100	<2	>5.80	>99.999
<i>Cronobacter sakazakii</i>	<100	<2	>6.11	>99.999

Results of the trial using 5 minutes contact time can be seen in Table 4.

Table 4:

Organism	Result (CFU/ml)	Result LOG	Log reduction	% reduction
<i>Escherichia coli</i>	<100	<2	>5.97	>99.999
<i>Salmonella</i> Menston	<100	<2	>6.15	>99.999
<i>Listeria monocytogenes</i>	<100	<2	>5.80	>99.999
<i>Cronobacter sakazakii</i>	<100	<2	>6.11	>99.999