



122 FAIRFIELD RD., FAIRFIELD, NJ 07004-2405 • PHONE: (973) 227-6882 • FAX: (973) 227-0812
e-mail: info@gibraltarlabsinc.com • internet: www.gibraltarlabsinc.com

REPORT No. G-148814

Project No.: GR2047
4/20/2005 Page 1 of 15

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LABORATORY REPORT**EXCELLENCE = GIBRALTAR****Study Title**

EPA Food Contact Sanitizer Test For Previously Cleaned Food-Contact Surfaces (AOAC Germicidal and Detergent Sanitizing Action of Disinfectant) against *Staphylococcus aureus* and *Escherichia coli*

Product Identity

Perasan A

Data Requirement

EPA Pesticide Assessment Guidelines Subdivision G, 1982, 91-2

Author

Daniel L. Prince, Ph.D.
President

Study Completion Date

4/20/2005

Testing Facility

Gibraltar Laboratories, Inc.
122 Fairfield Road
Fairfield, NJ 07004

Laboratory Project Number (Study File)

GBL Study # GR 2047

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REPORT No. G-148814
 Project No.: GR2047
 4/20/2005 Page 11 of 15

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STUDY RETENTION

Data Retention

The test findings reflected in this experiment will be kept on file for a period of at least five years in the Gibraltar Laboratories archives. Specific records to be maintained include a copy of this report, all raw data, sample information as provided by sponsor, and the findings of the QAU.

Specimen Retention

After all studies are complete the remaining test material, if any, will be discarded or destroyed in accordance with GBL policy and State and Federal regulations.

STUDY RESULTS

Control and Neutralization Results (Tables 1-6): Number controls, neutralizer effectiveness, neutralizer toxicity and sterility control requirements were met.

Study Results (Table 1-4): The test substance inactivated >99.999% of the test system within 30 seconds.

STUDY CONCLUSION

Perasan A, Lot # 35-411021, 35-410152 and 35-412131, inactivated ≥ 99.999% of *Staphylococcus aureus* and *Escherichia coli* within 30 seconds when diluted 1 ounce/6 gallons (1: 768) in 400 ppm AOAC hard water.

REPORT SUBMITTED BY:

Study Director
 Jozef Mastej

4/20/2005
 Study Completion Date

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REPORT No. G-148814
Project No.: GR2047
 4/20/2005 Page 12 of 15

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Table 1: Raw Data Results for *Escherichia coli*

Test Substance	Concentration in ppm (v/v)	Exposure Time	Flask	Plate Counts (CFU/plate)			
				Number Surviving membrane filtration		Number Controls (10 ⁻⁶) (Microbes Initially Present) Sum of membrane filtration 90 mL + 10 mL	
				90 mL	10 mL	Flask A	Flask B
Perasan A Lot # 35-411021	72.9	30 seconds	Flask A	0	0	85	92
			Flask B	0	0		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
Perasan A Lot # 35-410152	72.9	30 seconds	Flask A	0	0		
			Flask B	0	0		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
Perasan A Lot # 35-412131	72.9	30 seconds	Flask A	0	0		
			Flask B	0	0		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
						Avg. of Flask A and B 8.9 x 10 ⁷ = 7.95 Log	

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REPORT No. G-148814

Project No.: GR2047

4/20/2005 Page 13 of 15

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Table 2: Calculated Results for *Escherichia coli* (cfu/mL) by Lot, Exposure, and corresponding Percent and Log₁₀ Reduction

Test Substance	Exposure Time	Concentration in ppm (v/v)	Average Number Surviving (cfu/mL)	Microbes Initially Present (cfu/mL)	Microbes Initially Present (Log ₁₀)	Log ₁₀ Reduction	Percent Reduction
Perasan A Lot # 35-411021	30 seconds	72.9	0	8.9 x 10 ⁷	7.95	7.95	>99.999%
Perasan A Lot # 35-410152	30 seconds	72.9	0	8.9 x 10 ⁷	7.95	7.95	>99.999%
Perasan A Lot # 35-412131	30 seconds	72.9	0	8.9 x 10 ⁷	7.95	7.95	>99.999%

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REPORT No. G-148814
 Project No.: GR2047
 4/20/2005 Page 14 of 15

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Table 3: Raw Data Results for *Staphylococcus aureus*

Test Substance	Concentration in ppm (v/v)	Exposure Time	Flask	Plate Counts (CFU/plate)			
				Number Surviving membrane filtration		Number Controls (10 ⁻⁶) (Microbes Initially Present) Sum of membrane filtration 90 mL + 10 mL	
				90 mL	10 mL	Flask A	Flask B
Perasan A Lot # 35-411021	72.9	30 seconds	Flask A	82	7	103	101
			Flask B	75	6		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
Perasan A Lot # 35-410152	72.9	30 seconds	Flask A	69	7		
			Flask B	73	8		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
Perasan A Lot # 35-412131	72.9	30 seconds	Flask A	72	9		
			Flask B	58	8		
		60 seconds	Flask A	0	0		
			Flask B	0	0		
						Avg. of Flask A and B 1.0 x 10 ⁸ = 8.00 Log	

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REPORT No. G-148814
Project No.: GR2047
 4/20/2005 Page 15 of 15

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Table 4: Calculated Results for *Staphylococcus aureus* (cfu/mL) by Lot, Exposure, and corresponding Percent and Log₁₀ Reduction

Test Substance	Exposure Time	Concentration in ppm (v/v)	Average Number Surviving (cfu/mL)	Microbes Initially Present (cfu/mL)	Microbes Initially Present (Log ₁₀)	Log ₁₀ Reduction	Percent Reduction
Perasan A Lot # 35-411021	30 seconds	72.9	85	1.1 x 10 ⁸	8.00	6.07	>99.999%
Perasan A Lot # 35-410152	30 seconds	72.9	79	1.1 x 10 ⁸	8.00	6.10	>99.999%
Perasan A Lot # 35-412131	30 seconds	72.9	74	1.1 x 10 ⁸	8.00	6.13	>99.999%

Table 5: Neutralization Effectiveness and Neutralization System Toxicity Control Results

Test Substance and Test	<i>Staphylococcus aureus</i>			<i>Escherichia coli</i>		
	Flask A (cfu)	Flask B (cfu)	Inoculum (cfu)	Flask A (cfu)	Flask B (cfu)	Inoculum (cfu)
Neutralization Effectiveness Control Perasan A Lot # 35-411021	32	34	36	26	24	29
Neutralization System Toxicity Control	35	33		24	23	

Table 6: Sterility Control Results

Reagents and Lot #'s	Result
AOAC Hard Water Lot # C-1320	Sterile
Phosphate Buffer Dilution Water Lot # B-328, C-403	Sterile, Sterile
Neutralizer Broth (Phosphate Buffer Dilution Water containing 23.8 units catalase / mL and 0.055 Sodium thiosulfate) Lot # B-328, C-403	Sterile, Sterile

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