



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

G-150392
Project No.: GR2049
5/12/2005 Page 1 of 16
EDUCATION *Ph.D. Supervised*
EXPERIENCE *Serving since 1970*
EXTRAORDINARY *Upstream QA™*
Speed Reports
Golden Thread™

EXCELLENCE = GIBRALTAR

Study Title

Modified EPA Food Contact Sanitizer Test For Previously Cleaned Food-Contact Surfaces (AOAC Germicidal and Detergent Sanitizing Action of Disinfectant)

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

5/12/2005

Testing Facility

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

Laboratory Project Number (Study File)

GBL Study # GR 2049



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

G-150392

Project No.: GR2049
5/12/2005 Page 12 of 16

EDUCATION *Ph.D. Supervised*
EXPERIENCE *Serving since 1970*
EXTRAORDINARY *Upstream QA™*
Speed Reports
Golden Thread™

EXCELLENCE = GIBALTAR

STUDY CONCLUSION

Perasan A, Lot # 35-411021 prepared in 400 ppm AOAC hard water inactivated $\geq 99.999\%$ of *Bacillus subtilis* var. *globigii*, *Byssochlamys fulva* and *Aspergillus niger* when tested at 2.5 ounces / gallon (977 ppm) at 46C and 60C within 15 seconds contact time. Complete activity was also obtained against *Aspergillus niger* when tested 1 ounce/ gallon (391 ppm) at 60C and against *Byssochlamys fulva* when tested 1 ounce / gallon (391 ppm) at 46C and 60C prepared in 400 ppm AOAC hard water.

REPORT SUBMITTED BY:



Study Director
Jozef Mastej



Study Completion Date



EXCELLENCE = GIBRALTAR

Table 1: Raw Data Results for *Aspergillus niger* (Perasan A Lot # 35-411021)

Concentration in ppm (v/v)	Test temperature	Exposure Time	Flask	Plate Counts (CFU/plate)			
				Number Surviving membrane filtration (10^{-2})		Number Controls (10^{-6}) (Microbes Initially Present) Sum of membrane filtration 10 mL	
				90 mL	10 mL	Flask A	Flask B
391 ppm	46C	15 seconds	Flask A	>200	29	36	43
			Flask B	>200	32		
	60C	15 seconds	Flask A	0	0		
			Flask B	0	0		
977 ppm	46C	15 seconds	Flask A	0	0		
			Flask B	0	0		
	60C	15 seconds	Flask A	0	0		
			Flask B	0	0		
						Avg. of Flask A and B $4.0 \times 10^7 = 7.6 \text{ Log}$	

Table 2: Calculated Results for *Aspergillus niger* (cfu/mL) by Concentration, Exposure, Temperature and corresponding Percent and Log₁₀ Reduction

Concentration in ppm (v/v)	Exposure Time	Test Temperature	Average Number Surviving (cfu/mL)	Microbes Initially Present (cfu/mL)	Microbes Initially Present (Log ₁₀)	Log ₁₀ Reduction	Percent Reduction
391 ppm	15 seconds	46C	3.1×10^3	4.0×10^7	7.6	4.11	>99.99%
	15 seconds	60C	0	4.0×10^7	7.6	7.6	>99.999%
977 ppm	15 seconds	46C	0	4.0×10^7	7.6	7.6	>99.999%
	15 seconds	60C	0	4.0×10^7	7.6	7.6	>99.999%

For use of client only. This report shall not be reproduced except in full, without the written approval of the laboratory. Neither the name of this laboratory nor any member of its staff are to be used for sales or advertising without written authorization. Results pertain to samples tested only and are not necessarily indicative of the qualities of apparently identical or similar samples or products from the same or different lots, batches, or sources.



EXCELLENCE = GIBRALTAR

Table 3: Raw Data Results for *Bacillus subtilis* var. *globigii* (Perasan A Lot # 35-411021)

Concentration in ppm (v/v)	Test temperature	Exposure Time	Flask	Plate Counts (CFU/plate)			
				Number Surviving membrane filtration (10 ⁻²)		Number Controls (10 ⁻⁶) (Microbes Initially Present) Sum of membrane filtration 10 mL	
				90 mL	10 mL	Flask A	Flask B
391 ppm	46C	15 seconds	Flask A	TNTC	>200	78	83
			Flask B	TNTC	>200		
	60C	15 seconds	Flask A	>200	126		
			Flask B	>200	109		
977 ppm	46C	15 seconds	Flask A	0	0		
			Flask B	0	0		
	60C	15 seconds	Flask A	0	0		
			Flask B	0	0		

TNTC = Too Numerous To Count

Avg. of Flask A and B
 $8.1 \times 10^7 = 7.91 \text{ Log}$

Table 4: Calculated Results for *Bacillus subtilis* var. *globigii* (cfu/mL) by Concentration, Exposure, Temperature and corresponding Percent and Log₁₀ Reduction

Concentration in ppm (v/v)	Exposure Time	Test Temperature	Average Number Surviving (cfu/mL)	Microbes Initially Present (cfu/mL)	Microbes Initially Present (Log ₁₀)	Log ₁₀ Reduction	Percent Reduction
391 ppm	15 seconds	46C	TNTC	8.1×10^7	7.91	0	0%
	15 seconds	60C	1.2×10^4	8.1×10^7	7.91	3.83	>99.9%
977 ppm	15 seconds	46C	0	8.1×10^7	7.91	7.91	>99.999%
	15 seconds	60C	0	8.1×10^7	7.91	7.91	>99.999%

For use of client only. This report shall not be reproduced except in full, without the written approval of the laboratory. Neither the name of this laboratory nor any member of its staff are to be used for sales or advertising without written authorization. Results pertain to samples tested only and are not necessarily indicative of the qualities of apparently identical or similar samples or products from the same or different lots, batches, or sources.

Table 5: Raw Data Results for *Byssochlamys fulva* (Perasan A Lot # 35-411021)

Concentration in ppm (v/v)	Test temperature	Exposure Time	Flask	Plate Counts (CFU/plate)			
				Number Surviving membrane filtration (10^2)		Number Controls (10^5) (Microbes Initially Present) Sum of membrane filtration 10 mL	
				90 mL	10 mL	Flask A	Flask B
391 ppm	46C	15 seconds	Flask A	0	0	15	18
			Flask B	0	0		
	60C	15 seconds	Flask A	0	0		
			Flask B	0	0		
977 ppm	46C	15 seconds	Flask A	0	0		
			Flask B	0	0		
	60C	15 seconds	Flask A	0	0		
			Flask B	0	0		
Avg. of Flask A and B $1.7 \times 10^6 = 6.23 \text{ Log}$							

Table 6: Calculated Results for *Byssochlamys fulva* (cfu/mL) by Concentration, Exposure, Temperature and corresponding Percent and Log₁₀ Reduction

Concentration in ppm (v/v)	Exposure Time	Test Temperature	Average Number Surviving (cfu/mL)	Microbes Initially Present (cfu/mL)	Microbes Initially Present (Log ₁₀)	Log ₁₀ Reduction	Percent Reduction
391 ppm	15 seconds	46C	0	1.7×10^6	6.23	6.23	>99.999%
	15 seconds	60C	0	1.7×10^6	6.23	6.23	>99.999%
977 ppm	15 seconds	46C	0	1.7×10^6	6.23	6.23	>99.999%
	15 seconds	60C	0	1.7×10^6	6.23	6.23	>99.999%



Table 7: Neutralization Effectiveness and Neutralization System Toxicity Control Results

Test Substance and Test	<i>Aspergillus niger</i>			<i>Bacillus subtilis var. globigii</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 1 ounce / gallon	30	24	31	76	81	82
Neutralization Effectiveness Control Perasan A Lot # 35-411021 2.5 ounces / gallon	25	26		79	77	
Neutralization System Toxicity Control	28	23		77	78	

Table 8: Neutralization Effectiveness and Neutralization System Toxicity Control Results

Test Substance and Test	<i>Byssoschlamys fulva</i>		
	Flask A (cfu)	Flask B (cfu)	Inoculum (cfu)
Neutralization Effectiveness Control Perasan A Lot # 35-411021 1 ounce / gallon	11	12	14
Neutralization Effectiveness Control Perasan A Lot # 35-411021 2.5 ounces / gallon	10	13	
Neutralization System Toxicity Control	13	11	

Table 9: Sterility Control Results

Reagents and Lot #'s	Result
AOAC Hard Water Lot # C-1349, C-1351, C-1354, C-1360	Sterile
Phosphate Buffer Dilution Water Lot # D-122, 123	Sterile
Neutralizer Broth (Phosphate Buffer Dilution Water containing 23.8 units catalase / mL and 0.055 Sodium thiosulfate) Lot # D-122, 123	Sterile