



# McC Campbell Analytical, Inc.

"When Quality Counts"

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SASCO Chemical Group, Inc.

827 Pine Avenue

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Client Project ID: #FG-2;  
Form-Zero  
Client Contact: Gary Freeman  
Client P.O.: #30511

Date Sampled: 09/01/09  
Date Received: 09/01/09  
Date Extracted: 09/09/09-09/13/09  
Date Analyzed: 09/09/09-09/13/09

## CA Title 22 Acute Fish Bioassay Definitive Test for Hazardous Waste

Extraction Method: CA DFG (Polinski & Miller)

Analytical Method: CA DFG (Polinski & Miller)

Work Order: 0909111

Lab ID	0909111-003D	Species	Pimephales promelas	Avg. Length (mm)	36.6
Client ID	16A-Form 0	Common Name	Fathead Minnows	Avg. Weight (g)	0.341
Matrix	Water			Max Weight (g)	0.351
Control Water	Moderately hard synthetic water			Min Weight (g)	0.339

Concentration	Survival		Dissolved O2 (mg/L)		pH		Temperature (°C)		Comments	
	A	B	A	B	A	B	A	B		
Control	10	10	8.57	8.63	7.29	7.30	19.5	19.5	Analyst:	C M
125 MG/L	10	10	8.50	8.60	7.31	7.32	19.5	19.5		
250 MG/L	10	10	8.59	8.59	7.35	7.41	19.5	19.5		
500 MG/L	10	10	8.63	8.62	7.50	7.60	19.5	19.5		
1000 MG/L	10	10	8.60	8.65	7.75	7.86	19.5	19.5	Date:	9/9/2009
2000 MG/L	10	10	8.66	8.60	7.95	7.98	19.5	19.5	Time:	11:00 AM
Control	10	10	8.52	8.60	7.40	7.35	19.9	19.9	Analyst:	C M
125 MG/L	10	10	8.43	8.50	7.21	7.23	19.9	19.9		
250 MG/L	10	10	8.39	8.42	7.26	7.30	19.9	19.9		
500 MG/L	10	10	8.47	8.41	7.40	7.42	19.9	19.9		
1000 MG/L	10	10	8.55	8.57	7.49	7.53	19.9	19.9	Date:	9/10/2009
2000 MG/L	10	10	8.60	8.59	7.79	7.82	19.9	19.9	Time:	11:00 AM
Control	10	10	6.46	6.40	7.24	7.20	20.0	20.0	Analyst:	C M
125 MG/L	10	10	6.19	6.21	7.08	7.10	20.0	20.0		
250 MG/L	10	10	6.27	6.30	7.04	7.05	20.0	20.0		
500 MG/L	10	10	6.35	6.25	7.07	7.06	20.0	20.0		
1000 MG/L	10	10	6.40	6.25	7.06	7.03	20.0	20.0	Date:	9/11/2009
2000 MG/L	10	10	6.05	6.21	7.30	7.28	20.0	20.0	Time:	11:00 AM
Control	10	10	6.81	6.90	7.16	7.10	20.0	20.0	Analyst:	C M
125 MG/L	10	10	6.33	6.47	7.13	7.14	20.0	20.0		
250 MG/L	10	10	6.80	6.61	7.15	7.15	20.0	20.0		
500 MG/L	10	10	6.46	6.51	7.14	7.16	20.0	20.0		
1000 MG/L	10	10	6.59	6.33	7.15	7.15	20.0	20.0	Date:	9/12/2009
2000 MG/L	10	10	6.60	6.29	7.14	7.14	20.0	20.0	Time:	11:00 AM
Control	10	10	6.86	6.95	7.13	7.15	20.0	20.0	Analyst:	C M
125 MG/L	10	10	6.95	6.67	7.07	7.08	20.0	20.0		
250 MG/L	10	10	6.77	6.55	7.05	7.09	20.0	20.0		
500 MG/L	10	10	6.69	6.51	7.11	7.13	20.0	20.0		
1000 MG/L	10	10	6.77	6.39	7.15	7.18	20.0	20.0	Date:	9/13/2009
2000 MG/L	10	10	6.81	6.47	7.21	7.22	20.0	20.0	Time:	11:00 AM

Initial

Final


	Control	2000 MG/L	Control	2000 MG/L
Hardness (mg/L as CaCO3)	40	40	40	40
Alkalinity (mg/L as CaCO3)	33.84	88.96	31.6	74.04
Conductivity (uS/cm)	160	522.5	176.5	419.7
Salinity (mg/L)	N/A	N/A	N/A	N/A


**Result: Mortality <40% at highest concentration. Therefore LC50>=500mg/L ('non-hazardous')**

96 LC50: N/A  
95% Upper Confident Limit: N/A

LC50 Method: N/A  
95% Lower Confident Limit: N/A

DHS ELAP Certification 1644

 Angela Rydelius, Lab Manager

SUMMARY OF TEST RESULTS ON SECOND PAGE 

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## Form-Zero: Summary of EPA Certified Analytical Results

The Methodology and Summary of results on Form-Zero Neutralized Formalin Waste.

A volume of 10% neutral buffered formalin waste was collected from a histology-pathology lab in California and send via a certified carrier to an EPA certified Analytical Laboratory (EPA Lab).

The EPA Lab was instructed to treat 1 gallon of this 10% formalin waste with 1 bottle of the Form-Zero powder reagent and to designate this batch as Client Sample I.D. #16-A. Sample 16-A was then allowed to react over 25 minutes, where after this neutralized batch was then analyzed as follows:

An Aquatic Toxicity Study was conducted using, CA. Title 22 Acute Fish Bioassay Definitive Test for Hazardous Waste. This study consisted of Ten minnows exposed to a range of Form-Zero neutralized formalin waste concentrations for 96 hours. For waste products to be classified as “Non-Hazardous” 60% of the exposed minnows must survive this 96-hour exposure at a concentration level  $\geq$  500mg/L.

The EPA Certified Lab results show a 100% survival rate was still achieved at concentrations up to 2000 mg/L. This study shows a 100% survival rate even at 4 times higher concentration than the minimum critical exposure level of 500 mg/L.

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