



August 2, 2010

Howard Reed Fernandez  
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**Reference:** Reports prepared by Bio-Aquatic Testing, Inc. "Ecologic Product Test - EM Bio Grass Extra", 07/30/10 (containing Acute Toxicity Test Results for EM "Bio Grass Extra" as compared to Johnson and Johnson Baby Shampoo, Dawn Dish Soap, and Clorox Evergreen)

**Subject:** Interpretation and Summary of Test Results – Bio Grass Extra as compared to Johnson and Johnson Baby Shampoo, Dawn Dish Soap, and Clorox Evergreen

Dear Mr. Reed:

Per your request, I have reviewed the reports which you have provided, from Bio-Aquatic Testing, Inc. for the above referenced products. My summary and interpretation are as follows.

In an independent series of laboratory test conducted by Bio-Aquatic Testing, Inc., an accredited laboratory; the environmental safety of Bio Grass Extra, a naturally based cleaning product, was compared to three common household products; Johnson and Johnson Baby Shampoo, Dawn Dish Soap, and Clorox Evergreen. The test results showed that Bio Grass Extra was more environmentally friendly than the three other products tested using United States Environmental Protection Agency (USEPA) approved acute toxicity test protocols.

The acute toxicity test protocols, used by Bio-Aquatic Testing, Inc. to test Bio Grass Extra versus other products; were developed by the USEPA to compare the relative acute toxicity of chemicals and/or commercial products in the environment. These USEPA test protocols involve the exposure of multiple species of very small "pollution sensitive" marine animals to very dilute concentrations of the test products under controlled laboratory conditions in separate exposure scenarios of 48 hours and 96 hours in duration.

First, a series of control test are administered in which "laboratory seawater" with known properties is prepared, poured into multiple containers, and a known population of test organisms are added. Multiple species are used in separate controlled tests. During the testing process; temperature, food, and other factors are controlled. After 48 hours and 96 hours; the survivors are counted. Those data form the basis for the control portion of the USEPA test protocol.

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Subsequently, the laboratory seawater mixture is prepared, as with the controlled tests; except that the aforementioned test products (Bio Grass Extra, Johnson and Johnson Baby Shampoo, Dawn Dish Soap, and Clorox Evergreen) are separately added to laboratory seawater in separate containers; so as to prepare an individual series of containers for each product with each series of containers holding a decreasingly dilute concentrations of the product. The process allows the acute aquatic toxicity of each product to be evaluated over a range of concentrations.

In the reports that you provided; two species of pollution sensitive organisms were separately exposed at each concentration level for each product; and after 48 and 96 hours of carefully controlled conditions, survivors were counted. That data formed the basis by which the products were compared. The comparisons were made through a simple series of calculations to obtain the LC-50 for each product. The term, LC-50 refers to the Lethal Concentration (LC) at which 50% of the test species are expected to die under the specified test conditions. Resulting LC-50 values, from equivalent test protocols, can be directly compared to assess the relative toxicity of the products tested; in this case, the relative acute toxicity in the aquatic environment.

As previously stated, using these very sensitive, USEPA approved, aquatic acute toxicity test protocols; Bio Grass Extra was determined to be less acutely toxic as compared to Johnson and Johnson Baby Shampoo, Dawn Dish Soap, and Clorox Evergreen. Such comparisons are useful in making decisions regarding environmental protection. Selection of commercial products with lower acute toxicity such as Bio Grass Extra, as compared to the alternatives; provides an improved measure of environmental safety and typically reduces the liability and costs associated with using more acutely hazardous products.

Sincerely,



Walter L. Bouchard, MPH, CIH  
President  
W.L. Bouchard & Associates, Inc.