

# American Academy of Entomological Sciences

*Knowledge, Experience, Commitment*

Box 2503

Ridgeland, Mississippi

39158

February 9, 2009

Mr. Rodger Williams  
Operations Manager  
Applied Science Labs., Inc.  
PO Box 835  
Carmichael, CA 95609 0835

RE: Evaluation of Applied Science Labs Product  
REF Formula 020909.1 (BactroBUG)

Dear Mr. Williams:

After signing of the Confidential Disclosure Agreement I received the following from your company:

1. Label.
2. MSDS.
3. Explanation of the technology.
4. Technical grade sample of protein formulation.
5. Technical grade sample of the following amorphous silicates:
  - i. Calcium
  - ii. Aluminum sodium
  - iii. Sodium
  - iv. Potassium
  - v. Magnesium
6. Technical grade samples of iron oxide, strontium and sodium benzoate
7. Sample of finished product.

I have examined each of these elements noted herein under items 4, 5, and 6. These elements are exempt under EPA regulation commonly referred to as 25(b) and are found on a list of elements commonly referred to as the "4A List" and are Generally Recognized As Safe (GRAS). No opinion is provided as to compliance under any other regulatory scheme. As discussed, it may be possible to extrapolate the results of some testing as may regard European Union and other groups. Such discussion would come under a different heading

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I have combined each of these elements according to the instructions and formula that you have provided. These elements retain their chemical integrity in combination and do not combine to form any subsequent element that would not be Generally Recognized As Safe (GRAS). Or that does not comport with USDA 21 CFR 178.3400, Parts 182 and 184 as exempt food grade proteins.

I received the sample and followed the label directions and applied it on wild strains of house flies, *Musca domestica*, peri-domestic American cockroaches *Periplaneta americana*, and ants of the family Formicidae, of which we observed a 100% mortality within 2 minutes with house flies, within 5-10 minutes with American cockroaches depending upon life stage (adult females took longer to cause mortality) and within 5 minutes with ants. Bed bugs, *Cimex lectularius*, 100% mortality within 5-10 minutes depending on life stage.

I continued with a laboratory test by applying the product on several substrates such as painted plywood, raw plywood, ceramic tile, carpet, cotton fabric, and glass. Each sample was sprayed according to label directions to determine if residual component was observed. The samples were left to dry in ambient temperature and the following was observed with a 100 lumen 350 nm black light in a darkened room: each sample of painted plywood, raw plywood, ceramic tile, carpet, cotton fabric, and glass exhibited a glowing of the residual left behind on the test substrates.

Indoor mortality tests applying the product to baseboards, carpet, tile, wood floors, and ceramic tile glowed under 350 nm black light for eight (8) months when the test was terminated. Dead ants, spiders, centipedes, were observed periodically for eight (8) months after the initial application. A colleague applied the product to his dog and carpets to observe the results on fleas. Fleas on the dog showed mortality within three (3) minutes and no fleas have been found in the house after 8 months in the carpets or on the dog.

Sincerely,

## Jeffrey K. Brown

Jeffrey K. Brown, Ph.D., R.P.E., B.C.E.

Director General

American Academy of Entomological Sciences

850.499.7961

NOTE: This test was performed with the same formula and manufacturer that produces BactroBUG.