



Certificate of Performance

Microtox® Ecotoxicity Test

Scope: Ecotoxicity is the evaluation of the effect a substance has on the environment in which it is used. Various organisms are present in the various environmental compartments (salt water marine, freshwater marine, terrestrial-soil). Certain indicator species, such as fish, shrimp, worms, plants, bacteria, etc., have been used to determine what effect chemical substances will have if released into an environmental compartment. One such organism is bacteria. While the higher organisms have been used successfully to evaluate ecotoxicity, there are a few limitations when using these tests. These limitations include complex biological systems of the test organisms, low numbers of organisms used, less than desirable test precision, and the need for highly trained individuals to run the tests. Microorganisms such as bacteria are the simplest organisms used for ecotoxicity evaluations. There are advantages to using bacteria for ecotoxicity evaluations, such as the high population of individuals present in the test, the simplicity of their biological pathways, detection of chemical affect, good statistical precision of tests, and the similarity of bacterial response to those of higher organisms in toxicity tests. A common bacterial bioassay test is the Microtox® bacterial bioassay. This test employs *Vibrio fischeri*, which is a light emitting bacterium. When the bacteria in the test are exposed to a toxicant it has an effect on the amount of light output by the bacteria. The Microtox test is now being used in various U.S. EPA, international standards, and ASTM standard test methods. Lubrication Engineers has employed this test for several years for product formulation and QC analysis of the LowTox® product line.

Sample ID: Wirelife™ Almasol® Coating Grease (451,452 & 453)

Test Method: LB3825 Microtox Acute Toxicity Test

Result: EC₅₀ = 91,090 mg/L

Response: Based upon testing of multiple industrial and low toxicity products, Lubrication Engineers has determined that any product with an EC₅₀ value near or above 100,000 mg/L has low impact on the environment. I certify that the above result provides notification that Wirelife™ Almasol® Coating Grease will have minimal ecotoxicity affects when used to lubricate and protect in-service wire ropes when applied in environmentally sensitive areas such as bodies of water.

Signed:

John Sander
VP of Technology

Date: May 7, 2010