



UNION CARBIDE CORPORATION
P.O. BOX 8361, SOUTH CHARLESTON, WV 25303

November 12, 1996

Mr. Sammy Roberts
Superall Products, Inc.
P.O. Box 2954
Spring, Texas 77383

Dear Mr. Roberts,

OECD 301-B "ready biodegradability" testing has been completed on your product, SUPERALL #38 (lot # 070996 TFP). SUPERALL #38 should be classified as readily/rapidly biodegradable according to OECD biodegradation criteria; 76 percent biodegradation was reached by day 28, and the 10 to 60 percent biodegradation range was covered within 10 days. The OECD 301-B test, also commonly known as the carbon dioxide evolution or modified Sturm test, was performed following OECD testing guidelines (OECD Guidelines for Testing of Chemicals, Organization for Economic Co-operation and Development, Vol. 2, Section 3, Degradation and Accumulation, pp. 1-5, Updated 1993).

Following the recommended Sturm test procedures, a known amount of test material is added to a chemically defined liquid medium, placed in sealed, dark glass bottles, and inoculated with 1% bacterial seed inoculum from a primarily domestic wastewater treatment plant activated sludge. Carbon dioxide-free air is passed through the test solution, and carbon dioxide, released from biooxidation of the test material, is carried into and trapped by a solution of barium hydroxide. After reference to suitable blank controls, the amount of CO₂ produced by test substance during a specified test interval is measured. The evolved CO₂ is calculated as the percentage of total CO₂ theoretically produced by the test substance based on organic carbon composition. According to OECD criteria, carbon dioxide production reaching 60 percent of theoretical in 28 days is a positive (biodegradable) result; this 60 percent level should be reached within 10 days of obtaining 10 percent biodegradation.

SUPERALL #38 is a "readily biodegradable" substance by OECD standards, and it would be expected to rapidly and reliably biodegrade in the environment. SUPERALL #38 achieved 76 percent biodegradation at 28 days, and passed from 10% to 60% biodegradation between days 9 and 19; this 10-day window can be more easily observed on the attached graph plotting rate of biodegradation versus time. "Ready biodegradability" tests are very stringent tests were the test substance is given limited opportunity to biodegrade. Any 'readily' biodegradable substance would be expected to achieve greater than 90% biodegradation in 24 hours under the more favorable conditions of "inherent biodegradability" tests, such as the semi-continuous activated sludge tests (OECD 302-A or ASTM E-1625-94). These inherent biodegradability tests indicate expected degradation rates in a biological wastewater treatment system.

I hope this biodegradation data helps address any concerns about the biodegradation rate of SUPERALL #38. Please call (304-747-5850) if you have any questions concerning the biodegradation testing of your product.

Sincerely,

A handwritten signature in blue ink that reads "Ron Blessing". The signature is stylized and written over a circular scribble.

Ron Blessing
Union Carbide Corporation
Aquatic Testing Lab