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Comparative Laboratory-Scale Testing of Dispersant Effectiveness of 23 Crude Oils Using Four Different Testing Protocols*

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Abstract

A controlled laboratory study was conducted to measure the dispersion effectiveness of Corexit 9500 on 23 different crude oils. This study was a part of a larger project initiated by the Bureau of Safety and Environmental Enforcement (BSEE) testing 20 oils to compare the predictive value of laboratory dispersant effectiveness tests with their larger scale test conducted at Ohmsett, BSEE's national oil spill response test facility located in Leonardo, NJ. The test used in this study was the Baffled Flask Test (BFT), which is planned for adoption as EPA's official testing protocol for listing commercial dispersant products on the National Contingency Plan Product Schedule, replacing the current Swirling Flask Test (SFT) [1]. In addition, the results of 3 additional oils, the 2 used in the SFT and BFT as currently written plus another reference oil, are presented. The temperature used for the tests was 15°C, to match the temperature used at Ohmsett. The dispersion effectiveness ranged from 3.4% to 93%. The BFT is a laboratory test with results that are inversely correlated with oil viscosity and therefore has predictive value in the decision to use a dispersant in the event of a spill.

Keywords

Dispersion, Oil Spill, Dispersant, Crude Oil, Viscosity, Dispersion Effectiveness

*This document has been reviewed in accordance with US Environmental Protection Agency policy and approved for publication. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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