



Designation: F 1460 – 93 (Reapproved 1999)

Standard Practice for Calibrating Oil Spill Dispersant Application Equipment Boom and Nozzle Systems¹

This standard is issued under the fixed designation F 1460; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers uniform procedures for determining and reporting the dosage rate of oil spill dispersant application equipment.

1.2 This practice is applicable to spray systems employing booms and nozzles and is not fully applicable to other systems such as fire monitors, sonic distributors, or fan-spray guns.

1.3 This practice is applicable to systems for use on ships or boats and helicopters or airplanes.

1.4 This practice is one of four related to dispersant application systems. One is on design, one on calibration, one on deposition, and one on the use of the systems. Familiarity with all four standards is recommended. The other three standards are listed in Section 2.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

F 1413 Guide for Oil Spill Dispersant Application Equipment: Boom and Nozzle Systems

3. Significance and Use

3.1 This practice will enable calibration of oil spill dispersant application equipment and ensure a desired dosage and uniformity across the swath width.

3.2 The data provided by the methods described herein will permit the preparation of a chart relating delivery rate with application vehicle speed, flow meter reading or pump setting so that in actual application, the desired dosage will be achieved.

3.3 This practice will ensure that a dispersant application system is functional, capable of delivering a specified dosage, and that major components are operational.

4. Apparatus and Materials

4.1 *Pails*— of capacity 7 to 20 L (2 to 5 U.S. gal) to catch the spray from the nozzles.

4.2 *Graduated Cylinder*— of capacity 7 to 20 L or a scale having capacity of at least 20 kg (45 lbs) to determine the amount of fluid in each pail. Commercial equipment with an accuracy of at least 1 % is adequate.

4.3 *Stopwatch*.

4.4 *Test Fluid*—Water can be used as a test fluid if the viscosity of the dispersant to be used is not dissimilar to the viscosity of water. A surrogate fluid should be used if the viscosity difference is greater than approximately 100 times that of water. This can occur with more viscous dispersants or at low temperatures. The surrogate fluid could be water with the appropriate amount of thickener.

4.5 A continuing supply of water or test fluid, enough to run the system during the test period, must be available. Tank truck quantities may be required.

4.6 *Auxiliary Power Units*, where required.

4.7 Temperature of test fluid.

5. Calibration Procedure

5.1 *Synopsis*—The calibration procedure is done in four steps. The first step is equipment inspection. Any defects are corrected before further calibration. The second step is the calibration of the flow meter. The third step is calibration of the unit by catching water spray from each nozzle. The fourth step is the preparation of a calibration curve.

5.2 *Equipment Setup*— Place the application equipment at a suitable outdoor location and close to a supply of water or test fluid. Set up the equipment in accordance with the manufacturer's instructions and inspect visually. Start the unit. All nozzles should visually be producing approximately the same amount of spray. Inoperative nozzles or other elements such as pressure gages or flow meters, are repaired or replaced before proceeding. The operation of pressure gages should be verified before proceeding.

5.3 *Dispersant Flow Meter Calibration:*

¹ This practice is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.13 on Treatment.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.