



Standard Guide for Use of Oil Spill Dispersant Application Equipment During Spill Response: Boom and Nozzle Systems¹

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1. Scope

1.1 This guide covers the essential considerations for the maintenance, storage, and use of oil spill dispersant application systems.

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

1.3 This guide is applicable to systems employed on ships or boats and helicopters or airplanes.

1.4 This guide is one of four related to dispersant application systems. Guide F 1413 covers design, Practice F 1460 covers calibration, Test Method F 1738 covers deposition, and Guide F 1737 covers the use of the systems. Familiarity with all four standards is recommended.

1.5 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.6 *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:

F 1413 Guide for Oil Spill Dispersant Application Equipment: Boom and Nozzle Systems²

F 1460 Practice for Calibrating Oil Spill Dispersant Application Equipment Boom and Nozzle Systems²

F 1738 Practice for the Determination of Deposition of Aerially Applied Oil Spill Dispersants²

3. Significance and Use

3.1 This guide provides information, procedures, and requirements for management and operation of dispersant spray application equipment (boom and nozzle systems) in oil spill response.

3.2 This guide provides information on requirements for

storage and maintenance of dispersant spray equipment and associated materials.

3.3 This guide will aid operators in ensuring that a dispersant spray operation is carried out in an effective manner.

4. Equipment Types For Vessels and Aircraft

4.1 A spraying system consists of one or more pumps, flowmeters, storage tanks, spray booms, and nozzles that are mounted in various configurations depending on the platform.

4.2 Dispersant application systems on ships or boats may be portable or permanently installed. Vessels may have built-in dispersant storage tanks and on-board pumps for use with the spraying system.

4.3 Dispersant application systems on helicopters are most commonly slung beneath the aircraft, with remote controls available to the pilot. Some specially configured helicopters have integral tanks and pumps. Helicopter spraying systems are available with dispersant capacity of about 500 to 2000 L (120 to 500 U.S. gal).

4.4 Dispersant application systems on single-engine airplanes have a built-in tank and pump, with the booms attached to the wings. Dispersant capacity varies with the airplane design but is about 400 to 4000 L (100 to 1000 U.S. gal).

4.5 Dispersant application systems can also be installed on large multiengine airplanes. These must be designed for each type of aircraft, and will include one or more pumps, flowmeters, dispersant storage tanks, and spray booms with nozzles. The airplane type and payload capability will determine the available dispersant capacity from about 4000 to 20 000 L (1000 to 5000 U.S. gal).

5. Equipment Configuration for Vessels and Aircraft

5.1 *Vessels*—Dispersant spray systems for boats have been designed for many types of craft. Most systems use water-compatible “concentrate” dispersants diluted with seawater during application. These dispersants are mixed with seawater by use of an educator or metering pump to allow for the dispersant to be used at the desired concentration (generally 5 to 10 %).

5.1.1 Mount the spray booms as far forward as possible so that the spray is applied in front of the bow wave, because, this wave can push oil out of reach of the spray at typical boat speeds. Nozzles and extensions should be downward-pointing

¹ This guide is under the jurisdiction of ASTM Committee F-20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.13 on Treatment.

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² *Annual Book of ASTM Standards*, Vol 11.04.