



Designation: F 2152 – 01

## Standard Guide for In-Situ Burning of Spilled Oil: Fire-Resistant Boom<sup>1</sup>

This standard is issued under the fixed designation F 2152; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This guide covers a set of criteria to evaluate the performance, material characteristics, and essential features of fire-resistant oil spill containment boom.

1.2 This guide covers two types of fire-resistant oil containment boom: those that are intrinsically fire-resistant through the use of fire-resistant materials, and those that provide fire-resistance through the use of coolants. This guide may not be fully applicable to other types of fire-resistant boom.

1.3 This guide is one of three related to in-situ burning of oil spills. Guide F 1788 addresses environmental and operational considerations, and Guide F 1990 addresses ignition devices.

1.4 *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 requirements prior to use.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

F 625 Practice for Classifying Water Bodies for Spill Control Systems

F 715 Test Methods for Coated Fabrics Used for Oil Spill Control and Storage

F 818 Terminology Relating to Spill Response Barriers

F 962 Specification for Oil Spill Response Boom Connection

F 1093 Test Methods for Tensile Strength Characteristics of Oil Spill Response Boom

F 1523 Guide for Selection of Booms in Accordance With Water Body Classifications

F 1788 Guide for In-Situ Burning of Oil Spills on Water: Environmental and Operational Considerations

F 1990 Guide for In-Situ Burning of Spilled Oil: Ignition Devices

F 2084 Guide for Collecting Containment Boom Performance Data in Controlled Environments

### 3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *actively-cooled fire-resistant boom*—type of fire-resistant boom that uses ancillary equipment to supply coolant to the boom to increase its fire resistance.

3.1.2 *ancillary equipment*—mechanical devices essential to the operation of a given boom system; for example, water pumps, power supplies, control manifolds, and so forth.

3.1.3 *fire resistance*—the ability of a barrier to maintain structural integrity and oil containment ability while being subjected to the thermal stress of a petroleum fire.

3.1.4 *fire-resistant boom*—barrier intended for containment of burning oil floating on water.

3.1.5 *freeboard*—minimum vertical height of the boom above the water line.

3.1.6 *heat flux*—the thermal intensity indicated by the amount of energy per unit area. ( $\text{kW}/\text{m}^2$ ).

3.1.7 *in-situ burning*—burning of oil directly on the water surface.

3.1.8 *residue*—the material, excluding airborne emissions, remaining after the oil stops burning.

3.1.8.1 *Discussion*—Residue includes only material derived from the oil that is burned, and it shall not include material related to the boom or its components.

3.1.9 *salvageable components*—components of the boom that may be reused in a repair or reconstruction of the boom to its original state.

3.2 For other definitions relating to boom properties and dimensions, refer to Terminology F 818.

### 4. Equipment Description

4.1 To be effective, the fire-resistant boom shall contain oil floating on water before, during, and after exposure to in-situ burning of oil.

4.2 Some fire-resistant booms use coolant to increase their fire resistance. With some booms, this is actively supplied by ancillary equipment; others rely on wicking of the water in

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<sup>2</sup> 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.