



Designation: D3415 – 98 (Reapproved 2024)

## Standard Practice for Identification of Waterborne Oils<sup>1</sup>

This standard is issued under the fixed designation D3415; 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 practice covers the broad concepts of sampling and analyzing waterborne oils for identification and comparison with suspected source oils. Detailed procedures are referenced in this practice. A general approach is given to aid the investigator in planning a program to solve the problem of chemical characterization and to determine the source of a waterborne oil sample.

1.2 This practice is applicable to all waterborne oils taken from water bodies, either natural or man-made, such as open oceans, estuaries or bays, lakes, rivers, smaller streams, canals; or from beaches, marshes, or banks lining or edging these water systems. Generally, the waterborne oils float on the surface of the waters or collect on the land surfaces adjoining the waters, but occasionally these oils, or portions, are emulsified or dissolved in the waters, or are incorporated into the sediments underlying the waters, or into the organisms living in the water or sediments.

1.3 This practice as presently written proposes the use of specific analytical techniques described in the referenced ASTM standards. As additional techniques for characterizing waterborne oils are developed and written up as test methods, this practice will be revised.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.06 on Methods for Analysis for Organic Substances in Water.

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### 2. Referenced Documents

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

- D1129 Terminology Relating to Water
- D3325 Practice for Preservation of Waterborne Oil Samples
- D3326 Practice for Preparation of Samples for Identification of Waterborne Oils
- D3328 Test Methods for Comparison of Waterborne Petroleum Oils by Gas Chromatography
- D3414 Test Method for Comparison of Waterborne Petroleum Oils by Infrared Spectroscopy (Withdrawn 2018)<sup>3</sup>
- D3650 Test Method for Comparison of Waterborne Petroleum Oils By Fluorescence Analysis (Withdrawn 2018)<sup>3</sup>
- D4489 Practices for Sampling of Waterborne Oils
- D4840 Guide for Sample Chain-of-Custody Procedures
- D5037 Test Method for Comparison of Waterborne Petroleum Oils by High Performance Liquid Chromatography (Withdrawn 2002)<sup>3</sup>
- D5739 Practice for Oil Spill Source Identification by Gas Chromatography and Positive Ion Electron Impact Low Resolution Mass Spectrometry
- E620 Practice for Reporting Opinions of Scientific or Technical Experts

### 3. Terminology

#### 3.1 Definitions:

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129, and to Practices D3325, D3326, D4489, and D5739, and Test Methods D3328, D3650, and D5037.

#### 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *waterborne oil, n*—any oil, whether or not derived from petroleum, carried by a water system (for example, ocean, bay, lake, river, etc.) usually at the surface but occasionally emulsified or dissolved in the water. The waterborne oil can also be found on beaches or banks edging the water body, in the sediments underlying the water, or in the organisms living in the water or in the sediments.

<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.

<sup>3</sup> The last approved version of this historical standard is referenced on www.astm.org.