



Designation: D5831 – 23

Standard Practice for Screening Fuels in Soils¹

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1. Scope

1.1 This practice is a screening procedure for assessing the presence of fuels containing aromatic compounds in soils. If a sample of the contaminant fuel is available, the concentration of the fuel in the soil can be determined. If the contaminant fuel type is known but a sample of the contaminant fuel is not available, an estimate of the concentration of the fuel in the soil can be made using average response factors based on composition of the fuel in the soil. If the kind of contaminant fuel is unknown, this screening method can be used to identify the presence of contamination.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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.*

1.4 *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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water](#)
[D5681 Terminology for Waste and Waste Management](#)
[E131 Terminology Relating to Molecular Spectroscopy](#)
[E169 Practices for General Techniques of Ultraviolet-Visible](#)

¹ This practice is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.05 on Screening Methods.

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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.

Quantitative Analysis

[E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods](#)
[E275 Practice for Describing and Measuring Performance of Ultraviolet and Visible Spectrophotometers](#)
[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)
[E925 Practice for Monitoring the Calibration of Ultraviolet-Visible Spectrophotometers whose Spectral Bandwidth does not Exceed 2 nm](#)

3. Terminology

3.1 *Definitions*—For definitions of terms used in this screening practice, refer to Terminologies [D5681](#) and [E131](#).

4. Summary of Practice

4.1 A sample of soil is extracted with isopropyl alcohol, and the extract is filtered. The ultraviolet absorbance of the extract is measured at 254 nm. If a sample of the contaminant fuel is available, the approximate concentration of contamination can be calculated. If the contaminant fuel type is known but a sample of the contaminant fuel is not available, an estimate of the contaminant concentration is determined using average response factors based on composition of the fuel in the soil. If the composition of the contaminant fuel is not known, the absorbance value is used to indicate the presence or absence of fuel contamination. Calcium oxide is added to the soil as a conditioning agent to minimize interferences from humic materials and moisture present in the soil. Particulate interferences are removed by passing the extract through a filter.

5. Significance and Use

5.1 This practice is a screening procedure for determining the presence of fuels containing aromatic compounds in soils. If a sample of the contaminant fuel is available for use in calibration, the approximate concentration of the fuel in the soil can be calculated. If the fuel type is known but a sample of the contaminant fuel is not available for calibration, an estimate of the contaminant fuel concentration can be calculated using average response factors based on composition of the fuel in the soil. If the composition of the contaminant fuel is unknown, a contaminant concentration cannot be calculated, and this practice can only be used only to indicate the presence or absence of fuel contamination.