Designation: D7203 – 11

Standard Practice for Screening Trichloroethylene (TCE)-Contaminated Media Using a Heated Diode Sensor[1]

This standard is issued under the fixed designation D7203; 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 describes procedures for screening media known to contain the halogenated volatile organic compound (HVOC), trichloroethylene (TCE). Procedure A is to be used for screening soil known to contain TCE and Procedure B is to be used for screening water known to contain TCE.

1.1.1 Both Procedures A and B involve measuring the TCE concentration in the headspace above a sample using a heated diode sensor device. From this measurement, an estimated concentration of TCE in the sample can be determined. Any TCE remaining in the sample is not measured. Any other HVOC present in the sample will be reported as TCE.

1.2 Procedure A can also be used for screening the headspace above a soil suspected of containing HVOC contamination to indicate the presence or absence of HVOC contamination in the soil. Procedure B can also be used for screening the headspace above a water suspected of containing HVOC contamination to indicate the presence or absence of HVOC contamination in the water. For both procedures, any HVOC contamination remaining in the soil or water is not detected by this practice.

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

1.3.1 *Exception*—Certain inch-pound units are provided for information only.

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 application of regulatory limitations prior to use.*

NOTE 1—The diode sensor is heated to temperatures ranging between approximately 600 and 1000 °C (see 6.1.5) and as a result could be a source of ignition.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4547 Guide for Sampling Waste and Soils for Volatile Organic Compounds

D5681 Terminology for Waste and Waste Management

3. Terminology

3.1 *Definitions*—For definitions of terms used in this screening practice, refer to Terminology D5681.

4. Summary of Practice

4.1 *Procedure A*—To estimate the concentration of TCE in a soil known to contain TCE contamination, a sample of the soil is added to a glass jar having an open-top cap with a PTFE-bonded silicone septum. At the time of screening, the temperature of the soil in the jar should be approximately 50 to 120 °F (10 to 49 °C). The soil in the jar is shaken and allowed to settle for 10 min, so the TCE can partition into the headspace above the soil. After 10 min, the TCE concentration in the headspace is measured using a heated diode sensor device, which gives a numerical voltage reading. The voltage reading from the device is converted to a mg/m^3 value of TCE in the headspace in the container. Using this value, an estimated concentration of TCE in the soil in mg/Kg can be calculated. Any TCE remaining in the soil sample is not measured by this practice. Any other HVOC present in the soil will be reported as TCE.

4.1.1 To use Procedure A to screen a soil suspected of containing HVOC contamination, a sample of the soil is added to a glass jar having an open-top cap with a PTFE-bonded silicone septum. At the time of screening, the temperature of the soil in the jar should be approximately 50 to 120 °F (10 to 49 °C). The soil in the jar is shaken and allowed to settle for 10 min, so the HVOC can partition into the headspace above the soil. After 10 min, the heated diode sensor device is used to screen the headspace in the container. The numerical voltage reading from the device indicates the presence or absence of

[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.

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