



State of Oregon Department of Environmental Quality

# Soil Sample Preservation for Volatile Organic Compounds

DEQ has issued a policy clarifying implementation requirements for sampling and analysis of volatile organic compounds in soil samples. The policy applies to parties conducting soil sampling under Land Quality programs including underground storage tanks, heating oil tank decommissioning, environmental cleanup, including brownfields, and hazardous waste. DEQ has issued a [policy clarifying implementation requirements for sampling and analysis of volatile organic compounds in soil samples](#).

The policy clarifies DEQ's expectation that soil samples collected for the analysis for volatile organic compounds must be collected in conformance with US EPA SW-846 Update III, Revised May 1997 (EPA Method 5035) or US EPA SW-846, July 2002 (EPA Method 5035A).

Glass containers referred to as VOA vials are designed to minimize loss of volatiles from samples for VOCs in soil and water. However, the tank rules allow soil samples to be collected in containers other than VOA vials for purposes of analyzing for VOCs, specifically mentioning "wide-mouth glass jar" in OAR 340-122-0345(3)(d).

Soil samples that are not collected and preserved in the field according to Methods 5035 or 5035A, must be analyzed by the laboratory within 48 hours from the time of collection, or subsamples collected from the jar and preserved in VOA vials by the laboratory as set forth in Method 5035A Table A.1. Once subsampled and preserved, the analytical holding time is 14 days from the time of collection. DEQ's policy specifies that laboratory data reports flag data qualifiers reflecting where samples were not collected and preserved according to these requirements.

Under the Land Quality program quality assurance policy, consultants and service providers are required to have a Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) to ensure data collected for their facilities are of appropriate quality to support DEQ approval of their project data for decision making and regulatory compliance. Contractors may use DEQ's QAPPs that specifies EPA Method 5035 soil sample preservation, or prepare their own plan that describes the collection of samples in containers other than VOA vials (such as glass wide mouth jars or brass sleeves) for purposes of analyzing for VOCs. The QAPP or SAP should describe how they would be able to demonstrate that the use of alternative containers and subsequent sub sampling by the laboratory will allow regulatory decisions to be made. Include how the following will be achieved:

- Representativeness: The sample must be sufficiently homogenous so the laboratory subsample (without mixing) will still be representative of the site (similar particle size, no color striations, etc).
- Minimize loss of VOCs: Maintain the integrity of the sample to prevent loss of VOCs.
  - This may be dependent on the analyte compound list, heavier VOCs are less likely to be lost whereas lighter VOCs will likely be lost.
  - This may be dependent on the density of the sample material; more porous samples (e.g. sand) will be prone to loss of VOCs whereas dense sample material (e.g. clay) would be less prone to loss.

After **Jan. 1, 2016**, DEQ may either accept the data for qualified use or reject the data for risk assessment or compliance verification purposes if samples were collected in jars and not analyzed within 48 hours, or lacking laboratory documentation that subsamples were collected by the laboratory within this timeframe.