TDE-C06 – Sampling of Black Locust Leaves

Operating protocol | Version 1.0 | 10 November 2026

1. Purpose and scope

Procedure for sampling leaves of Robinia pseudoacacia (black locust) as a TDE sentinel plant bioindicator. The determinations already approved for sentinel plants are used: PFAS and selected organic contaminants under the TDE analytical protocol (including, where specified, pesticides, phosphonic acid and non-dioxin-like PCB). No metal analyses. TDE thresholds and rules are unchanged.

OPERATING RULE: all leaves are delivered fresh, unwashed and undried. Immediately prepare two equivalent portions: organic contaminants in glass; PFAS in suitable HDPE or PP containers verified by the laboratory.

2. Tree selection and season

• Identify a homogeneous, georeferenced station; preferably select locally established black locust trees that are not visibly stressed.

• Initial operational proposal: at least 5 representative trees where available; record any smaller number. Do not combine different sites or environmental settings.

• Collect healthy, mature leaves from several sides and accessible crown positions, avoiding contact with soil, coarse handling dust, and yellowed or visibly degraded leaves.

• Preferably sample during the latter part of summer, before senescence; maintain the same period for successive campaigns. Record weather conditions and recent rainfall.

3. Field procedure

1. Photograph the station and trees; record sample code, date/time, GPS coordinates, number of trees and exposure.

2. Prepare clean, labelled containers: portion A (organics) and portion B (PFAS). Avoid PTFE and fluorinated materials throughout the PFAS handling chain; use clean nitrile gloves and suitable steel scissors.

3. Collect healthy compound black locust leaves in similar amounts from each tree. Obtain equivalent material for both portions from all trees: do not allocate different trees to the two analytical groups.

4. Minimize handling. Do not wash, wipe, shred, grind or dry. Remove only large foreign objects without altering the leaves.

5. Immediately divide the material into two equivalent portions, one in glass for organics and one in HDPE/PP for PFAS. To distribute the material from each tree evenly, place half of that tree's leaves into portion A and half into portion B.

6. Label each container, protect it from light, promptly place it in a refrigerated insulated cooler and deliver it to the laboratory as soon as possible.

4. Containers and storage

Portion	Container	Conditions
A – Organics	Suitable, clean, wide-mouth glass, preferably amber; closure without contaminating surfaces in contact with the sample.	Fresh, unwashed leaves; refrigerate at approximately 4 °C and protect from light. For prolonged storage, freeze as instructed by the appointed laboratory's method.
B – PFAS	Suitable, verified, wide-mouth HDPE or PP; cap without PTFE/Teflon lining.	Fresh, unwashed leaves; refrigerate at approximately 4 °C (in any event ≤6 °C during transport). Freeze only according to instructions from the appointed laboratory.

For both portions, avoid contact with melting ice water and uncontrolled materials. Containers and consumables must be approved by the laboratory in relation to quantification limits and contamination risk, especially for PFAS.

5. Sample preparation and delivery to the appointed laboratory

• Preliminary handling is strictly limited to collecting, dividing, identifying and properly preserving the fresh biomass. Do not dry or perform other pretreatments without written laboratory instructions.

• The laboratory determines the minimum fresh mass per portion and any analytical preparation steps (homogenization, freeze-drying, extraction, moisture determination) using a validated method.

• To compare results with TDE thresholds, report concentrations on the mass basis specified in the analytical protocol; if fresh-weight/dry-weight conversion is required, measure moisture on a separate representative portion.

• If black locust cannot be sampled at a station, this does not justify mixing other species in the same sample: alternative plants require separate sampling and interpretation.

6. Quantities and minimum controls

As an initial logistical estimate, allow approximately 200–300 g of fresh leaves per portion (400–600 g total), only where compatible with plant availability. The final amount must be confirmed by the laboratory based on the analytical panel and required controls. This is not a regulatory requirement.

Where PFAS field blanks are required, use containers and materials supplied by the laboratory. Do not improvise blanks with uncertified water or materials.

7. Minimum accompanying record

Station/sample code; municipality/locality and GPS; date/time; sampled trees; crown positions; phenological stage; weather conditions; portion A or B; fresh mass; container; temperature; delivery time; photographs; anomalies; operators.

Methodological references

Penn State Extension, FAQ: PFAS Testing for Soils and Crop Tissues (updated 25 August 2025): https://extension.psu.edu/faq-pfas-testing-for-soils-and-crop-tissues

Bureau Veritas, PFAS – Containers and Hold Time, Soil and Tissue section: https://bvsolutions.freshdesk.com/en/support/solutions/articles/43000472883-pfas-containers-and-hold-time

TDE analytical and decision documents for sentinel plants, approved separately (thresholds and parameters unchanged).