

PROCEDURE FOR SAMPLING  
TREE BARK FOR ANALYSIS OF  
ORGANIC CONTAMINANTS

**Mark H. Hermanson**  
**University of Pennsylvania**  
**Department of Earth & Environmental Science**  
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This procedure identifies the steps required for collecting tree bark samples for analysis of organic contaminants, including polychlorinated biphenyls. These procedures must be followed carefully.

### *Materials*

Materials required for bark sampling include: measuring tape, sandpaper (40 or 60 coarseness), chisels, sampling jars (250 mL minimum) with covers, aluminum foil, and dichloromethane. Before use, chisels must be rinsed with dichloromethane to remove contamination. Sampling jars must have Teflon liners in the lids, or aluminum foil must be used in its place. Jars must be precleaned by muffling (glass and foil only) or by rinsing inside the jar & foil with dichloromethane.

### *Methods*

Take bark only from those trees that you have been given permission to sample. Trees selected for sampling should be in good health. Avoid trees that have missing bark, or that lose bark regularly (shag-bark hickory, for example). In general, older trees are better for sampling, unless the protocol requires younger trees. Deciduous trees are preferable to conifers because of analytical difficulties with conifer sap and pitch.

When a tree has been selected for sampling, its circumference at breast height must be measured to the nearest centimeter. Samples should be collected at breast height, which will be the older part of the tree. In general, it is better to sample older trees in order to minimize possible damage by removing bark.

Select a sampling area on the tree. Remove lichens, moss, insects and other non-bark materials. Using the sandpaper, remove as much of the oxidized (black, gray) surface layer of the bark as possible. Rinse the chisel with dichloromethane, and open the sampling jar. Holding the jar in one hand, use the chisel to scrape bark from the tree into the jar. The sample size should be at least 40 - 50 grams of material. This will fill an 8 fluid ounce (250 mL) jar, including spaces between chunks of bark. Size of bark chunk is not important. Some trees do not easily give up bark, which will result in many small pieces.

Remove only the surface bark. Do not damage the cambium layer (the vascular system of the tree). If necessary, sample a larger surface area to get enough sample. The vascular system of the tree will not include significant amounts of hydrophobic contaminants and should not be sampled.

When the jar is full, replace the aluminum foil and screw the lid on tightly. Label the jar with the site, date, tree type. Also include this information in a notebook.

Once the sample has been collected, it should be kept away from heat. For long-term storage, samples should be frozen.