



Soil and Plant Nutrient Testing Laboratory

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USE THIS FORM FOR TOTAL SORBED METALS TEST (EPA Methods Alt. 3050B and 6010)

See Page 2 for Sampling Instructions for Total Sorbed Metals Test. Send your sample(s), completed submission form and payment to the address listed above. Please make check payable to the University of Massachusetts (UMass).

Main contact:	Send copy to:	Method of receiving results <input type="checkbox"/> US Mail (please include \$2 for postage & handling) <input type="checkbox"/> E-mail
Name:	Name:	
Business Name:	Business Name:	
Street Address:	Street Address:	
City, State, and Zip	City, State, and Zip	
Phone:	Phone:	
E-mail address:	E-mail address:	

LAB # (Leave blank)	Sample ID (You create this)	<u>Total Metals: Lead, Nickel, Cadmium, Chromium, Zinc, Copper</u>	<u>Optional Additional Metals</u>		
		(\$55.00)	<u>Arsenic</u> (\$5.00)	<u>Selenium</u> (\$5.00)	<u>Molybdenum</u> (\$5.00)
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Order Total \$ _____

Sampling Instructions for Total Sorbed Metals Test

The most critical step in any type of soil testing is in collecting a sample that is representative of the whole area being tested. A poorly collected sample can give inaccurate results.

Due to the characteristics of heavy metals in soil and the varied ways in which those metals accumulate, sampling instructions for the Totals Sorbed Metals Test may be somewhat different from those for the Routine Soil Analysis.

It's necessary to have some background information about the area being tested. Elevated levels of heavy metals are primarily found in populated areas, and are usually the result of industry or other human activity. Knowing the history can help in assessing the potential risks. Below are some common ways that heavy metals are deposited in the soil and instructions on collecting samples that give meaningful results.

Lead and Arsenic Contamination

The most commonly found heavy metal soil contaminant is lead. The major cause of lead contamination in populated areas is from lead paint which was used prior to 1978. Because lead has very low solubility, the highest concentrations are most likely found in the top 1-2 inches, closest to older painted structures (within 1-2 feet).

Lead can also be found along heavily travelled roads, due to the past use of tetraethyl lead in gasoline.

Another source of contamination is in old orchards where lead arsenate was used as a pesticide. In these orchards, elevated levels of lead and arsenic may be found around the drip lines of trees (past and present).

Soil contamination from arsenic can also be the result of chemicals leaching from pressure treated wood. As with lead, elevated arsenic levels are generally concentrated near the source of the contamination. With pressure treated wood, contamination is usually found in soil that is in direct contact with the wood.

Industrial Contamination and Contamination from Outside Sources

Heavy metal contamination from mining and industry can be harder to predict. Learn as much as possible from local sources to determine the types and extent of potential contamination before collecting soil samples. Keep in mind that heavy metals tend to stay where they were deposited unless they were physically moved (with shovels, backhoes, rototillers, etc.). It may be helpful to map areas with potential contamination before sampling.

Unfortunately, sometimes fill or compost imported from outside sources can be contaminated with heavy metals. Whenever possible, have soil and compost tested before incorporating into your landscape. If you suspect contamination, assume the contaminants are mixed throughout for sampling purposes.

Revised July 2016

Collection Instructions for Play Areas

1. Determine the area that will be represented by the sample. Areas near the foundations of older structures and along heavily travelled roads should be sampled separately from the inner sections of a yard.
2. Using a clean bucket and a shovel or garden trowel, collect **12 or more subsamples to a depth of 1-2 inches** from random spots within the defined area. If you expect children to be digging, collect samples to a greater depth, but be aware that the concentration of lead from paint or leaded gasoline will be higher in the top 1 to 2 inches. You may consider sampling these depths separately to determine the extent of the contamination.

Collection Instructions for Gardens

1. Determine the area that will be represented by the sample. Areas near the foundations of older structures and along heavily travelled roads should be sampled separately from the inner sections of the garden.
2. Using a clean bucket and a shovel or garden trowel, collect **12 or more subsamples to a depth of 6-8 inches** from random spots within the defined area.

Sample Submission

To complete your sample submission, break up any lumps or clods of soil, remove stones, roots, and debris, and thoroughly mix subsamples in the bucket. Once the sample is thoroughly mixed, scoop out approximately **one cup** of soil and spread on a clean sheet of paper to air-dry. A fan set on low will help speed the drying process; do not apply heat. **Please do not submit wet soil samples to the lab.**

Place approximately **one cup** of your dry sample in a plastic zip-lock bag. Label each zip-lock bag with your sample ID (you create this) and complete the submission form. Send your sample(s), completed submission form and payment to the address listed on the front. Enclose cash, check, or money order payable to UMass with your order. Please include \$2 for postage and handling if you would like your results sent by US Mail.