Michigan Department of Community Health
Bureau of Laboratories
Division of Chemistry and Toxicology, Trace Metals Section

Dust Wipe Sampling for Lead

Wipe samples for settled dust shall be collected from floors (both carpeted and uncarpeted), window troughs, and window sills. Where possible, hard surfaces should be sampled.

Contents:

1. Wipe Sampling Materials and Supplies:

a. All wipe samples of settled dust must be collected using wipe material that meets ASTM Designation: E 1792-96a. The required wipe for the MDCH laboratory is the individually-packaged "Ghost Wipe", a 15cm x 15cm disposable wipe. Wipes and other materials may be obtained from the laboratory the inspector is using. Check the wipe package to ensure that the wipe is not expired.
b. Powderless plastic gloves. Disposable gloves are required to prevent cross-sample contamination from hands.
c. 50 mL screw-top non-sterilized polyethylene centrifuge tubes or equivalent hard-shell container that can be rinsed in the laboratory. Plastic ziptop bags (baggies) are **not** acceptable for dust sampling.
d. Dust sample collection forms: Environmental Lead Sampling Requisition, DCH-0558, December 2011.
e. Template options:
    i) Hard, smooth, reusable templates made of reusable aluminum or plastic or disposable cardboard or plastic. Templates should be 1 ft x 1 ft (1 ft^2), or of otherwise accurately known dimensions, between 0.2 ft^2 and 2 ft^2. Periodic wipe samples should be taken from the templates to determine if the template is contaminated. Reusable templates should be wiped with a clean disposable cloth before and after each use. Disposable templates are also permitted so long as they are not used for more than a single surface. Templates are usually not used for windows due to the variability in size and shape (use masking tape instead).
    ii) Adhesive tape. Tape is used to define the sampling areas when a template is not practical. It is required for wiping window sills and troughs in order to avoid contact with window jambs and channel edges. It is also used for adhering templates to the surface to be sampled.
f. Container labels or permanent marker

g. Trash bag or other receptacle
h. Measuring tape
i. Disposable shoe coverings (optional)
j. Rack, bag or box to carry tubes and other supplies/materials (optional)

2. Wipe Sampling Procedure:

a. Don disposable gloves. If gloves are not stored in a sealed box, discard the first glove. Use new gloves for each sample collected.

b. Outline wipe Aaea:

Floors: For wide, flat areas, use a sampling template. Identify the area to be wiped. If no template is available, apply adhesive tape to perimeter of the wipe area to form an area of one square foot (12 in. by 12 in.). The tape should be positioned in a straight line and corners should be perpendicular.

Window sills and other rectangular surfaces: Identify the area to be wiped, which should be at least .2 ft^2 in size (approximately 3 in. by 10 in.). Do not touch the wipe area. Mark the area with tape and measure the area to be sampled.

When using tape, do not cross the boundary tape or floor markings, but be sure to wipe the entire sampling area. It is permissible to touch the tape with the wipe, but not the surface beyond the tape.

Do not walk on or touch surfaces to be sampled (the wipe areas).

c. Inspect the wipe package. If it is contaminated with dust, clean the package with a cloth. Discard any wipes that are dried out or visibly contaminated.

d. Partially unscrew the cap on the centrifuge tube to be sure that it can be opened.

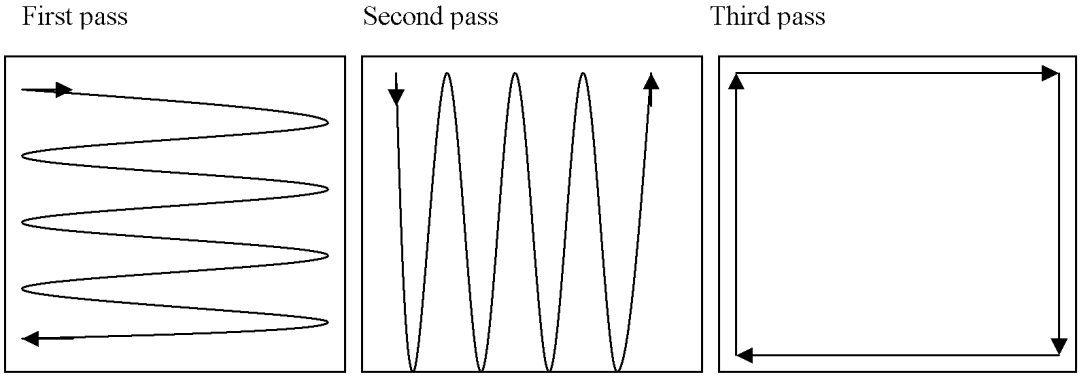
e. Place the wipe at one corner of the wipe surface with wipe fully opened and flat.

f. First wipe pass (side-to-side): With the fingers together, grasp the wipe between the thumb and the palm. Press down firmly, but not excessively with fingers (do not use the palm or heel of the hand). Do not touch the surface with the thumb. If the wipe area is a square, wipe side-to-side with as many "S" or “Z” like motions as are necessary to completely cover the entire wipe area. Exerting excessive pressure on the wipe will cause it to curl. Exerting too little pressure will result in poor collection of dust. Always press the front edge of the wipe forward. Attempt to remove all visible dust from the wipe area.

g. Second wipe pass (top-to-bottom): Fold the wipe in half with the contaminated side facing inward. The wipe can be straightened out by laying it on the wipe area, contaminated side up, and folding it over. Do not touch the contaminated side of the wipe with the hand or fingers. Do not shake the wipe in an attempt to straighten it out, since dust may be lost during shaking. Once folded, place in the top corner of the wipe area and press down firmly with the fingers. Repeat wiping the area with "S" or “Z”-like motions, but in a top-

to-bottom direction for the second pass. Attempt to remove all visible dust.

h. Third pass (perimeter): Fold the wipe in half again with the contaminated side facing inward. Once folded, place in the top corner of the wipe area and press down firmly with the fingers. Wipe around the perimeter of the area, staying inside the border, and focusing on collecting dust from the corners.

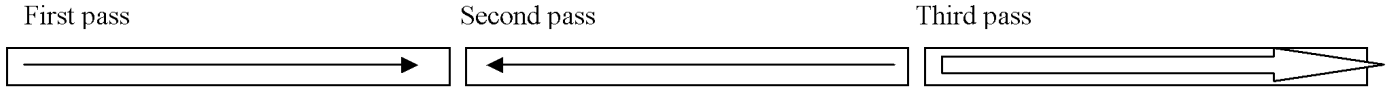


i. Window sills:

For window sills marked by tape, make two side-to-side passes over this surface, the second pass with the wipe folded so that the contaminated side faces inward. After the second pass, fold the wipe in half again, with the contaminated side facing inward, and wipe the surface for a third time, focusing on collecting dust from the corners of the sampling area. Do not attempt to wipe the irregular edges presented by the contour of the window channel. Avoid touching other portions of the window with the wipe. Do not use more than a single surface wipe for each container. If heavily dust-laden, a smaller area should be wiped, as long as the area is a minimum of 0.2 ft^2 (approx 3 in. x 10 in.).

j. Window troughs (wells):

For a window trough, mark the sampled area using tape, and make two side-to-side passes over this surface. After the first pass, fold the wipe in half so that the contaminated side faces inward. After the second pass, fold the wipe in half again, with the contaminated side facing inward, and wipe the surface for a third time, focusing on collecting dust from the corners of the sampling area. It is not necessary to wipe the entire window well, but do not wipe less than 0.2 ft^2 (approx. 3 in. x 10 in.).



k. Packaging the Wipe:

After wiping, fold the wipe with the contaminated side facing inward again, and insert aseptically (without touching anything else) into the centrifuge tube or container.

l. Labeling the Centrifuge Tube:

Seal the tube and label with at least two (ideally three or more) identifiers, using either a

pre-printed label or permanent marker. The identifiers should include a sample number and a site identifier, (such as street address), as well as the location where the sample was taken (such as room number and floor/sill/trough). Identifiers should match the sample numbers on the Environmental Lead Sampling Requisition form.

m. Area Measurement:

After sampling, measure the surface area wiped to the nearest eighth of an inch using a tape measure or a ruler. The size of the area wiped must be a least 0.20 ft^2 in order to obtain an adequate limit of quantification. No more than 2 square feet should be wiped with the sample wipe. Record specific measurements or square inches for each area wiped on the sampling request form. For floor sampling, at least 0.5 ft^2 should be wiped.

n. Trash Disposal:

After sampling, remove the masking tape and throw it away in a trash bag. Remove the glove; put all contaminated gloves and sampling debris into a trash bag. Remove the trash bag when leaving the dwelling.

3. Blank Preparation:

Collect one blank wipe for each dwelling unit sampled or, if more than one dwelling unit is sampled per day, one blank for every 50 field samples, whichever is less. To collect a blank wipe, remove a wipe from the wrapper with a new glove, shake the wipe open, refold as it occurs during the actual sampling procedure, and then insert it into the centrifuge tube without touching any surface or other object.

4. Inspector Decontamination:

Personnel conducting paint sampling should avoid hand-to-mouth contact (specifically: smoking, eating, drinking, and applying cosmetics) and should wash their hands with running water immediately after sampling. The inspector should ask to use the resident's bathroom for this purpose. Wet wipes may be used if running water or the bathroom is not available.

5. Form Completion and Fees:

Fill out the Environmental Lead Sampling Requisition completely. Collect and maintain any field notes regarding type of wipe used, lot number, collection protocol, etc. Chain of custody requirements should be followed if applicable.

Fees: Contact the MDCH lab for information about fees. Fee-based samples will only be accepted from counties with certified lead inspectors. A check payable to the State of Michigan and a list of clients must be submitted with each specimen. Attach the check to the Environmental Lead Sampling Request. A billing procedure for testing services may also be arranged with the laboratory. Local public health departments are exempt from a fee when

submitting public health-related samples, which are environmental lead specimens for lead-poisoned client. Individuals wishing to submit samples should contact their local health department to arrange billing, submittal, and payment.

6. Quality Assurance/Quality Control:

If more than 20 µg/wipe is detected in a blank sample, the wipes may be contaminated and samples should be collected again. Blank correction of wipe samples is not recommended.

Any questions or problems concerning environmental sampling results should be directed to:

MDCH Trace Metals Laboratory
3350 N. Martin Luther King Blvd.
Lansing, MI 48909
Phone: (517) 335-8244
Fax: (517) 335-9776
Email: knottnerusm@michigan.gov or larivierec@michigan.gov

Questions on sampling procedures can be directed to the MDCH Healthy Homes Section at 1-866-691-LEAD.

7. Lead Hazard Identification:

In accordance with Michigan administrative rule R325.99402 and the U.S. Environmental Protection Agency 40 CFR Part 745.227, the following lead levels became effective for lead hazard control activities in the state of Michigan on March 6, 2001:

Hazard Determination and Clearance Levels - at or above:

40 µg/ft^2, floors
250 µg/ft^2, interior window sills
400 µg/ft^2, interior window troughs

Note: lead hazard screens are not permitted under Michigan law.

8. References:

a. ASTM E 1728-03. Standard practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination. Copies are available (for a fee) on the ASTM website at: http://www.astm.org/Standards/E1728.htm.

b. *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June, 1995. Copies of the Guidelines are available (for free) on the HUD website at: http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/lbp/hudguidelines.