



## ***Mercury Quick Reference Guidance Sheet***

### Introduction

The concentration values discussed here are *not regulatory requirements but rather health-based recommendations* meant to prevent hazards to health following a mercury spill. Large mercury spills, those that equal or exceed one pound, should be reported to the National Response Center (800-424-8802). MDCH believes that even small spills, like from a fever thermometer, can pose a hazard to human health depending upon the sensitivity of the individuals exposed (especially children under the age of 6), the length of exposure, the room size, temperature, frequency of air changes, and other variables.

This guidance can be used during a cleanup and for clearance levels afterwards. The clearance concentration numbers may be adjusted higher or lower, depending upon the specific situation. For example, the clearance or re-occupancy level for an elementary classroom would be different than that for a senior center. Those conducting screening or cleanup can call the MDCH Toxics and Health Hotline (1-800-MI-TOXIC or 1-800-648-6942) to consult with staff regarding particular situations.

### Instrumentation and Units

MDCH and the U.S. EPA typically use a Lumex® mercury-vapor analyzer machine when investigating mercury spills. These machines measure the air concentration of mercury in real time. The Lumex RA915+ analyzer reports mercury concentrations in nanograms per cubic meter ( $\text{ng}/\text{m}^3$ ). The Lumex “Lite” reports concentrations in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). It is important to understand the units your machine is reporting:

$$1,000 \text{ ng}/\text{m}^3 = 1 \mu\text{g}/\text{m}^3$$

### Testing Items

Check floors and other possibly affected surfaces and compare readings to breathing zone concentrations. If surface readings are higher, a source of mercury is likely present. Residual mercury beads may be invisible to the naked eye.

Seal suspect items in plastic bags, allow to warm up ( $>70^\circ\text{F}$ ) in a warm room or the sunshine, and test the headspace to determine if they are contaminated.

It is a good idea to always screen the vacuum cleaner, washing machine, and clothes dryer. Consider checking sink traps too.

## Occupancy During Clean-up:

Indoor Concentration		Suggested Action*	Discussion
ng/m <sup>3</sup>	µg/m <sup>3</sup>		
<1,000	<1	Occupants <b>can remain</b> in building	The level below which occupants may choose to stay in a dwelling for the duration of a clean-up of reasonable length of time (i.e., days vs. weeks)
Between 1,000 and 10,000	Between 1 and 10	Occupants <b>may need to leave</b>	Values in this range may require a site-specific plan to minimize exposure for sensitive populations. Keep windows open for adequate fresh air exchanges.
>10,000	>10	Occupants <b>should leave</b>	
>20,000	>20	<b>Evacuate</b> occupants. Open windows to <b>ventilate. Do not characterize further.</b>	This situation should be handled by professionals.
>50,000	>50	<b>Evacuate</b> occupants. <b>Do not enter.</b>	The Lumex tends to be less accurate in the higher range. Actual concentrations may be much higher and more acutely hazardous. This situation should be handled by professionals.

\*When deciding upon actions, consider whether the mercury is confined to an area that can be sealed off from the rest of the building.

## Screening Objects:

Indoor Concentration		Suggested Action	Discussion
ng/m <sup>3</sup>	µg/m <sup>3</sup>		
<1,000	<1	Items <b>may be acceptable</b> to keep.	No hotspots at carpet surface. Porous materials (throw rugs, upholstered furniture, linens, clothing) may be aired out in the sun – <b>DO NOT LAUNDRER</b> . Hard surfaces can be cleaned, then aired out in the sun. Consider re-screening items before returning to use.
Between 1,000 and 10,000	Between 1 and 10	Items <b>may not be acceptable</b> to keep.	Remove and dispose of affected carpeting and padding. Err on the side of caution and dispose of other affected materials. (Antiques and heirlooms may be exceptions.) Or, air out items for weeks in a warm, non-living space and consider re-screening before returning to use.
>10,000	>10	Items <b>should not be kept.</b>	

## Post Clean-up Acceptable Air Clearance Values:

Indoor Concentration**		Suggested Action	Discussion
ng/m <sup>3</sup>	µg/m <sup>3</sup>		
<1,000	<1	Clean-up is <b>sufficient for re-occupancy of residential structure.</b>	Value assumes pregnant women and/or children under the age of 6 years live in the affected dwelling.
<3,000	<3	Clean-up <b>may be sufficient for re-occupancy of non-residential structure.</b> Use professional judgment for areas having sensitive populations (e.g., schools, daycares, clinics). NIOSH 6009 testing may be recommended.	Clearance number is not applicable to occupational settings where mercury is normally handled.

\*\*All source mercury and contaminated items have been removed and adequate ventilation has occurred. Measurement is taken from breathing zone.