



## **MONTHLY SAFETY BRIEF: MERCURY**

Continuing our journey of specific contaminants to be aware of and understand the basics about, this safety brief is about the stuff many of us older folks used to play with as kids, elemental mercury.

Mercury comes in the form of methylmercury, elemental mercury and organic and inorganic mercury; every form has a different route of entry and way of affecting our bodies and environment. This safety brief covers elemental mercury, the type of mercury that is part of most of our mercury projects as environmental, health and safety consultants.

When we respond to mercury spills from pressure gages; a blood pressure cuff break; a thermometer break; or removing a gym floor, these are all examples of elemental mercury.

### **General Info**

Elemental mercury is liquid at room temperature. It is used in some thermometers, dental amalgams, fluorescent light bulbs, some electrical switches, mining, and some industrial processes. It is released into the air when coal and other fossil fuels are burned. Mercury has the chemical symbol of Hg.

### **Factors of Mercury Exposure**

The factors that determine the effect any mercury exposure will have on us are:

- The form of the mercury
- The dose
- The age of person exposed
- Duration of exposure
- Route of exposure
- Health of person exposed

For us in the field, it is also important to remember that temperature has a large impact on the amount of mercury vapors produced. The hotter, the more vapor.

### **Mercury Effects**

The human health effects from exposure to low environmental levels of elemental mercury are generally unknown. At low vapor concentrations over a long time, neurological disturbances, memory problems, skin rash, and kidney abnormalities may occur. At high levels, exposure to a fetus, or young child can permanently impair their neurological development. Very high mercury vapor concentrations can quickly cause severe lung damage.

### **Occupational Exposure Limits**

- OSHA has a Ceiling Limit of 0.1 mg/m<sup>3</sup>
- ACGIH has a TLV of 0.025 mg/m<sup>3</sup>

### **What You Can Do**

- Understand where mercury vapor may be an issue and take appropriate actions to address.
- Don personal protective equipment and a respirator with a mercury vapor cartridge when working on mercury projects.
- Become proficient in sampling for mercury vapor and particulate forms. We have a Jerome mercury vapor analyzer in-house.



## MERCURY QUIZ

- 1) Which of the following forms of mercury do we generally deal with as EHS consultants?
  - a. Methylmercury
  - b. Elemental Mercury
  - c. Organic Mercury
  - d. Inorganic Mercury
  
- 2) What is the chemical symbol of mercury?
  - a. Me
  - b. Mr
  - c. Hg
  - d. Hm
  
- 3) If a worker is only exposed to mercury vapor for less than 5 minutes at a concentration of 0.2 mg/m<sup>3</sup>, there is no OSHA compliance concerns.  
 True  
 False
  
- 4) We are likely to see a higher concentration of mercury in air in an area that is 85 degrees versus 75 degrees.  
 True  
 False
  
- 5) A HEPA filtered respirator will protect against mercury vapors.  
 True  
 False

**SCORE: PASS / FAIL**

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Supervisor Signature

\_\_\_\_\_  
Date