

Oil Sands & Mercury Contamination: Concentration



<https://www.youtube.com/watch?v=o6D2qqwQLdQ>

1. Mercury (Hg) is a toxic heavy metal that is a part of industrial waste. As a metal, what properties do we expect elemental mercury to have?

-Lustrous (Shiny)

-Conduct electricity and heat

-Ductile

-Malleable

2. Mercury has a unique characteristic that sets it apart from other metals, what is this characteristic?

Mercury is the only metal that is liquid at room temperature.

It's the liquid found in some older thermometers and in fluorescent light bulbs.

3. The chemical mentioned in the video was called **methylmercury**, this chemical is a combination of carbon, hydrogen and mercury. Which of the following is methylmercury (CH_3Hg) an example of?

An Element

A Compound

A Physical Mixture

4. From 1962 to 1970 the Dryden chemical company poisoned a river system in Ontario by dumping nine tonnes of mercury into it. Mercury concentrations were measured in three rivers in the same area. If the toxicity threshold for mercury concentration in water is 0.002 ppm which of these rivers has (have) toxic levels of mercury?

River	Mercury Concentration
Vermillion	0.0002 % mass/volume
Wabigoon	0.0042 g/L
English	0.018 ppm

Convert to PPM

Vermillion: 0.0002 % Multiply by 10 000 ($\times 10\,000$) = 2PPM (TOXIC)

Wabigoon: 0.0042 g/L Multiply by 1 000 ($\times 1000$) = 4.2 PPM (TOXIC)

English: 0.018 PPM Multiply by 1 (same unit) = 0.018 PPM (TOXIC)

The **Vermillion, Wabigoon and English** rivers have toxic levels of mercury.