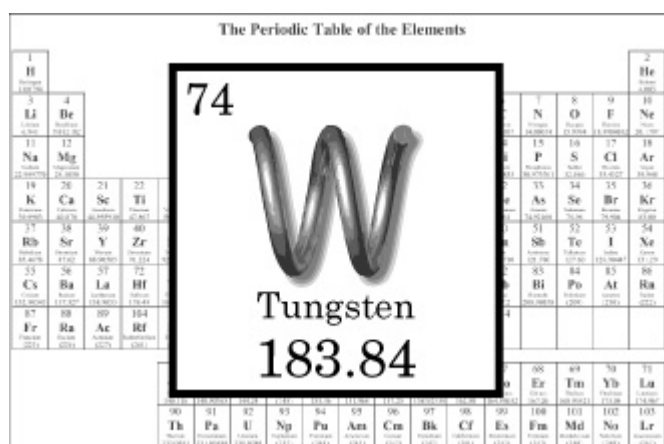


Is Tungsten Toxic?

February 16, 2011 11:15 AM Arthur Nead
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Tungsten is all around us. Widely used in manufacturing and industry, tungsten wire has glowed in countless light bulbs, and tungsten carbide hardens the steel used for drill bits and cutting tools. Until recently this heavy, dense metal was considered non-toxic and environmentally friendly. But is it? That's what Tulane biogeochemist Karen Johannesson wants to know.



The image shows a standard periodic table of elements. A callout box is overlaid on the table, highlighting the element Tungsten (W). The callout box contains the following information:

- Atomic number: 74
- Symbol: W
- Name: Tungsten
- Atomic weight: 183.84

Tulane biogeochemist Karen Johannesson is studying how tungsten, once thought harmless, behaves in the environment. (Illustration by Tracey O'Donnell)

[Johannesson](#) will be doing basic research on what allows tungsten to move through the environment and potentially impact human health.

“For a long time, hunters could buy tungsten bullets and buckshot, and it has been used for fishing weights,” says Johannesson. “So there is metal out there that people thought was perfectly harmless and non-mobile, but it turns out that we are probably wrong on both counts ? we don't know anything about how tungsten behaves in the environment.”

To correct this deficit, Johannesson, a professor of earth and environmental sciences, and co-investigator Saugata Datta, assistant professor of geology at Kansas State University, have begun a pioneering study on tungsten. Tulane is slated to receive about \$309,000 from the National Science Foundation for the three-year project.

Concerns about tungsten emerged when childhood leukemia clusters were identified in Western states including Nevada, Arizona and California.

“They are all located near old tungsten mines or modern hard metal industry or tungsten processing centers,” says Johannesson. High levels of tungsten were found in the blood of people living nearby, raising questions. Was this caused by particulate tungsten transported by air, or did they get it from their region's groundwater, the source of drinking water?

Preliminary data indicates that when tungsten is metallic it is stable, but when exposed to atmosphere or water, it forms compounds that are mobile.

“We want to start to go out and test that,” says Johannesson. “We need to get some basic understanding of how tungsten cycles in the environment.”