

# Nanomaterials in our environment

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The manufacturing of nanomaterials has been steadily on the rise in the medical, industrial, and scientific fields. Nanomaterials are materials that are engineered to have dimensions less than 100 nanometers and have very unique properties as a result of their small size.

In a study funded by the U.S. Environmental Protection Agency, a team of scientists from the University of Kentucky determined that earthworms could absorb copper nanoparticles present in soil.

One crucial step in determining the uptake of [nanomaterials](#) was discerning whether uptake of [metal ions](#) was released from the nanomaterials or the nanomaterials themselves. Using x-ray analysis, researchers were able to differentiate between copper ions and copper nanoparticles by examining the oxidation state of copper in the earthworm tissues.

Many products will release their nanomaterials either as a result of regular use or after disposal. These discarded [nanoparticles](#) could enter waterways and eventually soil. According to the authors, it is unclear how nanomaterials interact in the environment due to lack of scientific research; however, there is a possibility of unintentional ingestion by humans and animals.

Jason Unrine, the lead author of the study said, "This was one of the first studies to demonstrate that engineered nanomaterials can be taken up from the soil by soil organisms and enter food chains, and it has significant implications in terms of potential exposure to nanomaterials

for both humans and ecological receptor species."

Unrune assures that ongoing studies are being conducted on transformation, bioavailability, trophic transfer, and adverse effects of engineered nanomaterials in terrestrial ecosystems.

Nanomaterials are used in a variety of instruments and consumer goods including protective coatings and [solar cells](#).

**More information:** View the abstract at [www.agronomy.org/publications/ ... /abstracts/39/6/1942](http://www.agronomy.org/publications/.../abstracts/39/6/1942)

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