



Nanotechnology Research Center (NTRC)

What are our priorities?

The Nanotechnology Research Center (NTRC) of the National Institute for Occupational Safety and Health (NIOSH) conducts research to understand the potential effects on human health of exposure to engineered nanomaterials. The NTRC also develops methods to control or eliminate exposures. Nanoparticles are extremely small particles (between 1 and 100 nanometers) designed to have certain new or unique characteristics, like strength, elasticity, or reactivity. These new properties make advanced materials and products possible. NTRC focuses on the following areas to help industry move safely and responsibly into the future:

- Increasing the public’s understanding of potential health risks to workers making and using nanomaterials.
- Preventing occupational exposures to nanomaterials.
- Evaluating potential worker health risks from advanced materials and manufacturing processes.

What do we do?

- Identify new types and uses of engineered nanomaterials through research, technology surveillance, and partner input.
- Prioritize engineered nanomaterials for lab and field research, focusing on those with the greatest potential for exposure and harm to workers.
- Conduct laboratory research on the biological mechanisms underlying the effects of exposure to engineered nanomaterials.
- Conduct field investigations and epidemiological studies for an evidence-based understanding of exposure and risks to nanomaterial workers.
- Share recommendations on how to use engineering controls and personal protective equipment to lower exposure to engineered nanomaterials.
- Provide input into the U.S. cross-agency National Nanotechnology Initiative and other international organizations’ strategies to address health and safety of engineered nanomaterials
- Provide engineered nanomaterial businesses with guidance they can use to keep their workers safe, and develop public trust.

What have we accomplished?

- Developed a NIOSH recommended exposure limit for silver nanomaterials, which could pose a potential health risk to workers. Released *Current Intelligence Bulletin 70: Health Effects of Occupational Exposure to Silver Nanomaterials*.
- Published a [study](#) reviewing processes, emissions, and exposures in additive manufacturing.
- Contributed to the [2021 National Nanotechnology Initiative Strategic Plan](#). This document presents goals and objectives to guide federal agencies and the community over the next five years to ensure that the United States remains a world leader in nanotechnology research and development and to ensure the responsible development of nanotechnology.

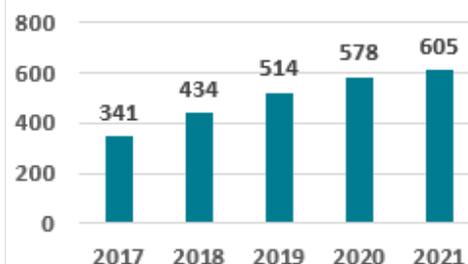
What’s next?

- Publish the document *Occupational Exposure Sampling for Engineered Nanomaterials*.
- Publish the document *Approaches to Safe 3D Printing: A Guide for Makerspace Users, Schools, Libraries and Small Businesses*.
- Conduct an evaluation of biomarkers of engineered nanomaterial exposure and disease.
- Finalize the document *Approaches to Developing Occupational Exposure Limits or Bands for Engineered Nanomaterials*.
- Publish the first two videos in the series of an *Overview of Additive Manufacturing Health and Safety*.

At-A-Glance

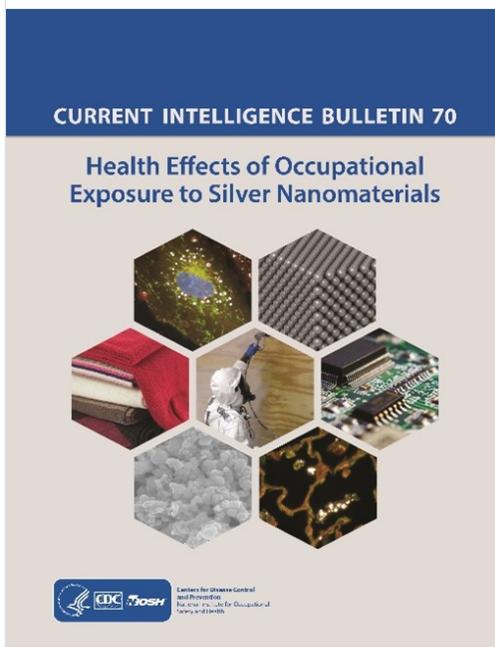
The NTRC develops recommendations that support responsible development of nanotechnology. This snapshot shows recent accomplishments and upcoming work.

Cumulative Number of NIOSH Nanotechnology & Additive Manufacturing Publications since 2017



Source: NIOSH program records

Cover of Current Intelligence Bulletin: Health Effects of Occupational Exposure to Silver



To learn more, visit www.cdc.gov/niosh/programs/nano/ July 2022

