



What is the main message? Nanotechnology presents new opportunities to create better materials and products. As products made from nanoparticles become more numerous and therefore more prevalent in the environment, EPA is considering how nanotechnology will impact its environmental programs, policies, research needs, and approaches to decision making. EPA has taken a lead role in addressing the environmental applications and implications of nanotechnology.

How does this help the EPA mission?

Nanotechnology has potential direct applications for environmental protection, including new clean-up technologies and nano-scale measurement and monitoring devices. In addition, nanotechnology can lead to materials--and processes for manufacturing materials--that are more environmentally friendly than current materials and industrial processes.

Issue: How EPA is Addressing Nanotechnology Science Needs

Background: Nanotechnology presents new opportunities to create better materials and products. It also has the potential to improve the assessment, management, and prevention of environmental risks. However, there are unanswered questions about the impacts of engineered nanoparticles on human health and ecosystems. As products made from nanoparticles become more numerous and therefore more prevalent in the environment, EPA is considering how nanotechnology will impact its environmental programs, policies, research needs, and approaches to decision making.

Status: EPA has taken a leadership role in research on the environmental applications and implications of nanotechnology—through its own research programs and by its participation in National Nanotechnology Initiative. EPA sits on the interagency Nanoscale Science, Engineering, and Technology subcommittee of the White House Office of Science and Technology Policy, National Science and Technology Council (www.nano.gov)

To date, EPA's nanotechnology research efforts include 35 research grants to develop nanotechnology applications to protect the environment; 30 research grants that focus on studying the possible impacts of manufactured nanomaterials on human health and ecosystems; and, through its Small Business Innovation Research Program, contracts to over 25 small companies to develop and commercialize nanomaterials and clean technologies. In addition, EPA's Science Policy Council has developed a draft Agency white paper that outlines the science policy issues EPA must address with regard to the applications and implications of nanotechnology. The paper is presently undergoing external peer review.

In June 2005, the Office of Pollution Prevention and Toxics (OPPT) convened a public meeting regarding a potential voluntary pilot program for nanoscale materials and the information needed to adequately inform the conduct of the pilot program. ("Nanoscale Materials; Notice of Public Meeting," 70 Fed. Reg. 24574, May 10, 2005. On November 22, 2005, OPPT's federal advisory committee, the National Pollution Prevention and Toxics Advisory Committee (NPPTAC), officially forwarded to EPA an "Overview Document" which describes a framework for EPA's approach to a stewardship program for engineered nanoscale materials. OPPT is considering the issues raised in that

document while considering development and implementation of the stewardship program as well as regulatory approaches for nanomaterials. OPPT is already reviewing new chemical submissions for nanomaterials under the Toxics Substances Control Act (TSCA).

EPA's Office of Air and Radiation, Office of Transportation and Air Quality (OTAQ) has received and is reviewing an application for registration a diesel additive containing cerium oxide. Nano-cerium oxide particles are being employed in Europe as on- and off-road diesel fuel additives to decrease emissions and some manufacturers are claiming fuel economy benefits.

In the area of outreach, EPA is co-sponsoring and participating in a Public Engagement Workshop on Nanotechnology. The National Nanotechnology Coordination Office is leading this interagency effort. The Workshop is designed to identify approaches to more actively engage the public on matters of science – to hear their views and concerns about the technology.

For information regarding the STAR Program, National Nanotechnology Initiative, International Nanotechnology Activities contact:

Steve Lingle lingle.stephen@epa.gov
202-334-9699 (ORD-NCER)

For information regarding the Office of Pollution Prevention and Toxics Stewardship Program for Nanoscale Materials contact:

Jim Willis willis.jim@epa.gov
202-564-0104 (OPPTS-OPPT)

For information regarding Office of Air and Radiation/Office of Transportation and Air Quality Nanomaterials Registration Applications for Motor-Vehicle Fuel Additives contact:

Jim Caldwell caldwell.jim@epa.gov
202-343-9303 (OAR-OTAQ)

For information regarding the Science Policy Council Nanotechnology Impact Workgroup contact:

Jeff Morris morris.jeff@epa.gov
202-564-6756 (ORD-OSP)
Jim Willis will.jim@epa.gov
202-564-0104 (OPPTS-CCD)

For information regarding the Nanotechnology Public Engagement Workshop contact:

Anita Street street.anita@epa.gov
202-564-3626 (ORD-OSP)
Cate Alexander calexand@nnco.nano.gov
703-292-4399 (NNCO)