

U.S. EPA – Nanotechnology Environmental Benefits/Risks & Research Strategy

ABSTRACT

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Engineered nanomaterials are expected to provide major environmental benefits in the following areas: treatment and minimization of generated wastes from chemical and manufacturing processes; cost-effective remediation of contaminated environmental sites and waste-streams; development of real-time, sensitive environmental sensors; and development of environmentally benign alternatives to chemical processes. Consequently the development and use of nanotechnology will have a dramatic impact on modern society, as a result of its potential to substantially improve the characteristics and/or performance of a number of commercial product applications. Governments, industry, non-governmental organizations, academia and the general public are excited about the potential benefits that may arise. However, there is also an acknowledgement of the need to understand potential human health and environmental impacts, and to engage in proactive efforts to minimize such impacts.

Concerns about nanotechnology impacts arise due to the uncertainties surrounding questions about potential toxicity, bioaccumulation, biopersistence, biotransformation, environmental fate and transport, formation of by-products or intermediates, and exposure. This talk will outline U.S. Environmental Protection Agency (EPA) efforts in the area of nanotechnology as the Agency continues to protect human health and the environment. Specifically key initiatives will be described, both those that are ongoing and those under development. These efforts have enabled the Agency to maintain a leadership position in nanotechnology and environmental issues. Specific initiatives described will include: the development of a prioritized research strategy tailored to capitalize on Agency staff expertise while leveraging resources with other federal research programs; the involvement in national and international collaborative; the participation in networks and partnerships composed of a variety of stakeholders. The goals are to understand the full import, define critical issues, and developed proactive approaches for managing emerging novel technologies. Options for potential EPA-Korea collaborations in research will be offered to begin the dialogue on interactions.