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Environmental Risks and Benefits and Emerging Consumer Products
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Comprehensive Environmental Assessment and U.S. EPA Nanomaterial Case Studies

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In an effort to refine a research strategy to support assessments of the environmental and health risks of engineered nanomaterials, the U.S. Environmental Protection Agency (EPA) is developing case studies focusing on specific applications of selected nanomaterials. These case studies are not completed risk assessments but are structured around an approach known as comprehensive environmental assessment (CEA), which combines a product life cycle framework with the risk assessment paradigm (Davis, J.M., *J. Nanosci. Nanotech.* 7:402-9, 2007). The CEA approach considers primary and secondary contaminants, multiple environmental media, fate and transport processes, cumulative and aggregate exposure, and ecological as well as human health risks across the life cycle of a product. Three case studies are being developed: case studies one and two examine nanoscale titanium dioxide as used in water treatment and sunscreen applications, respectively; a third case study of a type of product using nano-silver is currently under development. A workshop will be held to review the case studies and will involve a broad array of technical experts and stakeholders in a structured format such as a multi-criteria decision analytic approach. The objective of the case studies and workshop is to identify information gaps that need to be filled and to prioritize research in a strategic manner to best support future CEAs of the potential risks of nanomaterials.