

Environmentally-benign Nanomanufacturing: Merging Green Chemistry and Nanoscience

Nanotechnology promises considerable benefit to society and the environment. However, the products of nanotechnology and the manufacturing processes used to produce these products may pose threats to human health, the environment, worker safety, and security. The challenge will be to develop nanotechnology to provide maximum benefit, while minimizing the hazards. Green chemistry and engineering principles can be adopted to guide the early stages of product and process development to meet this challenge. Discoveries in nanoscience will provide new opportunities for the development of sustainable technologies. In this presentation, I will discuss how green chemistry and engineering principles can guide the responsible development of nanotechnology and how nanoscience can enable the discovery of greener products and processes. Examples of greener materials, processes and applications of nanoscience will be presented, with an emphasis on nanomanufacturing.