

Prevention through Design, Nanotechnology, and Green Chemistry

Facilitating a Green Economy

Charles L. Geraci, Ph.D., CIH

National Institute for Occupational Safety and Health
Green Chemistry Council

April 28, 2010

"The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy."



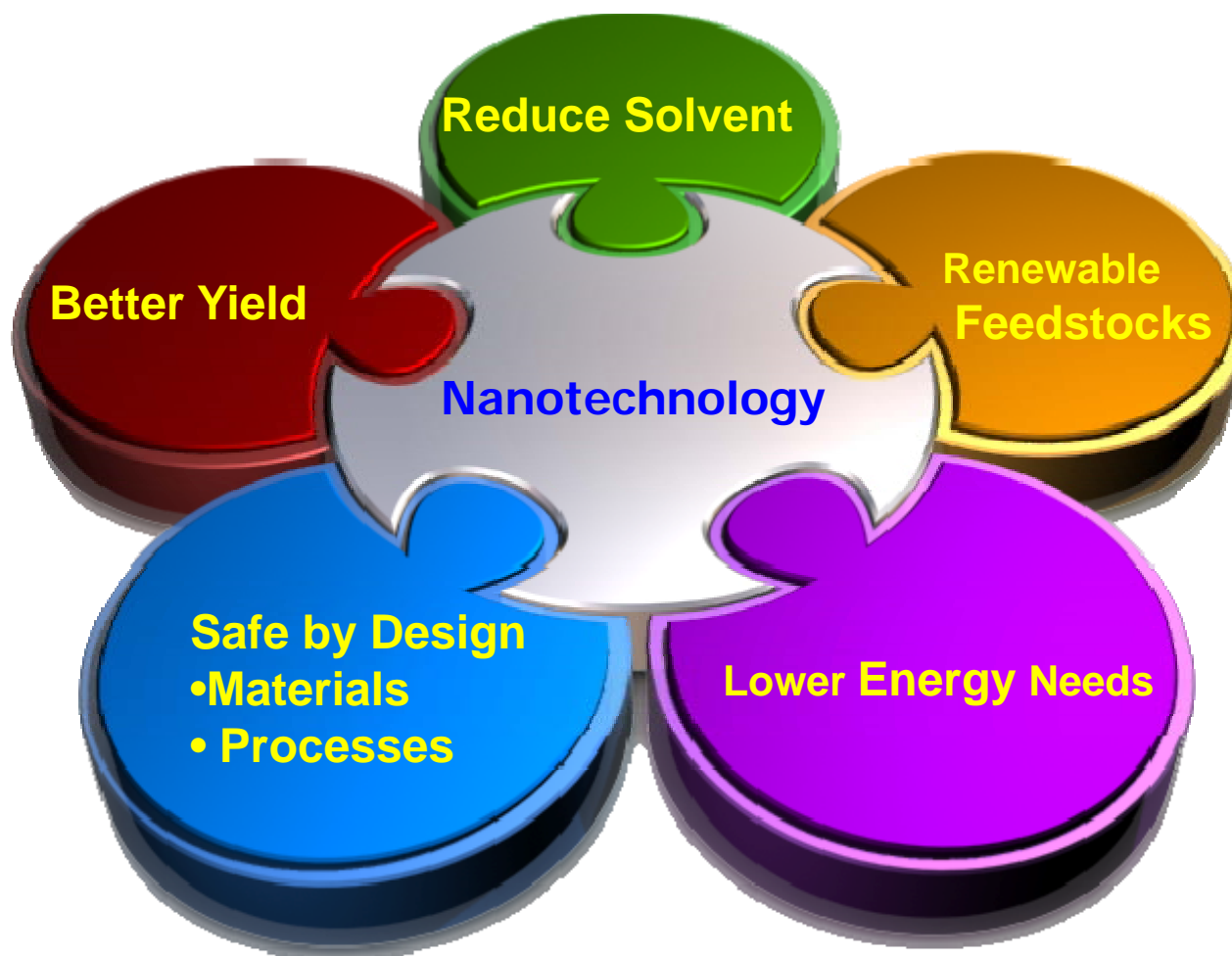
Objective: To prevent occupational injuries, illnesses, and fatalities through the inclusion of prevention principles in all designs that impact workers



Objective: Responsible development of the technology by investigating implications and applications, potential hazards of nanomaterials; developing interventions; and deploying guidance globally



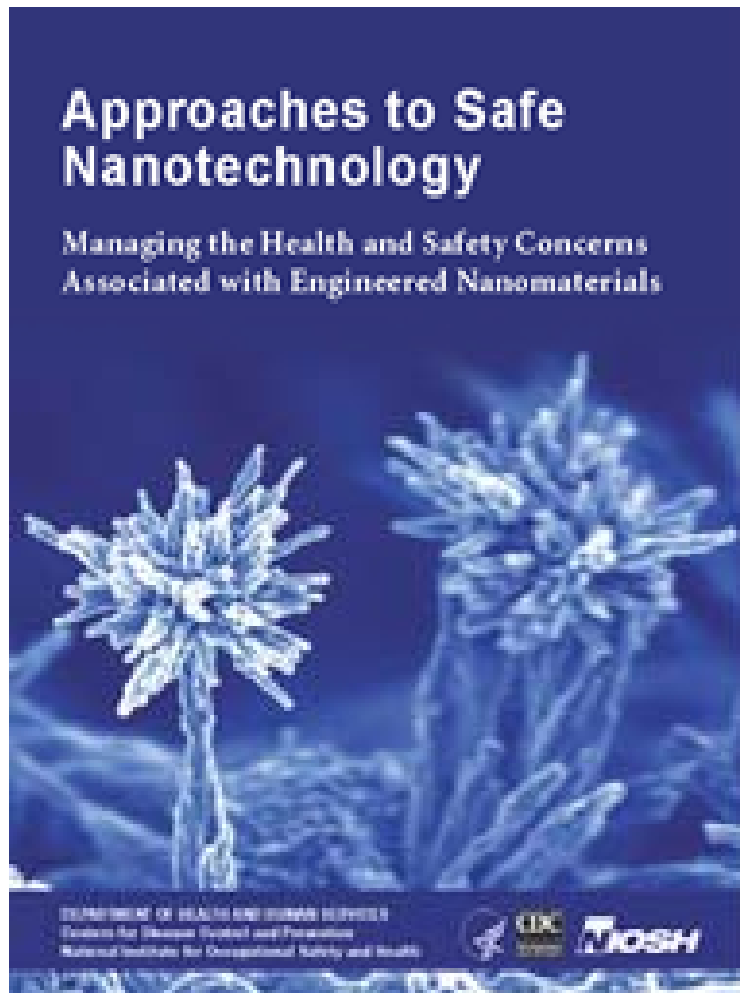
Green Chemistry Opportunities for Nanotechnology



Nanotechnology Facilitating Green and Sustainable

Agriculture	More efficient, targeted delivery of plant nutrients, pesticides
Automotive	Lighter, stronger, self-healing materials
Biomedical	Targeted therapeutics, enhanced detection, new structural materials
Energy	More efficient fuel cells, solar collectors
Environmental	New pollution control and remediation tools, sensors
Food	New safety sensors, food preservatives, nutrient additives
Materials	Self-cleaning glass, stain resistant, stronger materials, body armor
Water	New purification approaches

Being Safe and Green while Making and Using Nanomaterials



Guidance from NIOSH on responsible development of the technology.

- Summary of issues
- Approaches to consider
- Basic Guidance
- Updated as new information comes on-line
- Input requested

www.cdc.gov/niosh/topics/nanotech

Nanotechnology: Summary

- More than 1,000 'nano' enabled products already in commerce.
- Hazards of nanomaterials are still not clear
- NIOSH is conducting research and developing guidelines on occupational exposures
- Research
 - Toxicology of nanoparticles
 - Measurement methods
 - Controls and worker protection
- Guidance
 - Exposure assessment
 - Control technologies
 - Medical screening and surveillance
 - Exposure registries
 - Epidemiologic studies
 - Developing document on CNTs





Thank you!

CGeraci@cdc.gov

