

Introduction – October 4, 2018 Workshop: Engineered Nanomaterials – No Small Issue

Engineered nanomaterials (ENM) and nanotechnology are increasingly used in consumer products and many other applications. In 2015, more than 1800 nanotechnology-derived consumer products were available on the market¹ and more than 500 nano-enabled construction materials have been identified². Since the start of the National Nanotechnology Initiative (NNI) in 2000, the US government has invested more than \$20 billion in nanotechnology research³ to investigate and realize the great potential of these technologies. In 2012 alone, US corporations spent \$4 billion on research and development of nanotechnology⁴.

Engineered Nanomaterials and Public Health

In the Public Health domain, ENM are recognized as an emerging public health concern in environmental and occupational health⁵. The development, storage, transport, use, and waste management of ENM can expose workers and the general population, and cause releases into the environment. Compared to bulk materials, we know much less about the toxicity, exposures, health effects, environmental fate and transport of ENM. In response, the NNI has included the investigation of the environmental, health and safety of ENM as part of their work⁶.

The Site Assessment Section has led CDPH's Nanotechnology Group since 2012, funded under a Cooperative Agreement between CDPH and the federal Agency for Toxic Substances and Disease Registry (ATSDR). In 2017, under Rick Kreutzer's leadership (Chief of CDPH's Division of Environmental and Occupational Disease Control), we reached out to the Office of Environmental Health Hazard Assessment (OEHHA), the Air Resources Board (ARB), and the Division of Occupational Safety and Health, also known as Cal/OSHA, to organize a larger workshop on ENM. The planning group agreed on the workshop's objective to enable and encourage a thoughtful and educated discussion of this topic, and to focus on program managers and technical staff from state agencies as the target audience. We sought input into the agenda from our target audience, and identified and invited speakers from California and nation-wide organizations to cover a wide range of topics.

Participants

The Planning Group hosted the workshop on October 4, 2018 in the California Environmental Protection Agency (CalEPA) building in Sacramento. Approximately 47 people participated in the workshop throughout the day, representing the following state agencies: CDPH, OEHHA, ARB, Cal/OSHA, California Air Pollution Control Officers Association, Department of Pesticide Regulation, Department of Toxic Substances Control, and the California Council on Science and Technology.

¹ Vance, M. E., Kuiken, T, Vejerano, E. P., et al. "Nanotechnology in the Real World: Redeveloping the Nanomaterial Consumer Products Inventory." *Beilstein J Nanotechnol* 2015 6: 1769-1780.

² <https://www.cpw.com/chart-book-6th-edition-hazards-and-exposures-engineered-nanomaterials-us-construction-industry>

³ <https://www.acs.org/content/dam/acsorg/membership/acs/benefits/extra-insights/nanotech-final-040816.pdf>

⁴ <https://members.luxresearchinc.com/research/report/13748>

⁵ <https://www.healthypeople.gov/2020/topics-objectives/topic/occupational-safety-and-health> and <https://www.healthypeople.gov/2020/topics-objectives/topic/environmental-health>

⁶ <https://www.nano.gov/about-nni/what/vision-goals>