

Report: Nanotech outpaces safeguards

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WASHINGTON (AP) -- From toothpaste to trousers, dozens of everyday products contain materials made through the blossoming science of nanotechnology -- but laws safeguarding the public's health and safety aren't developing nearly as quickly, according to a new report.

Few will say whether the nano materials, often hundreds of times smaller than the diameter of a human hair, are unquestionably safe or dangerous given the lack of definitive research into the matter.

However, Terry Davies, author of the report released Wednesday, said it's time to start discussing changing laws -- and perhaps drafting new ones -- to identify and protect the public from any risks that may crop up in the future.

"The technology is new but it's not so new that it's not being commercialized," said Davies, a senior adviser to the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars and a former Environmental Protection Agency official.

Nanotechnology involves the manufacture and manipulation of materials at the molecular or atomic level -- the smallest things yet. At that scale, materials are measured in nanometers or billionths of a meter. Nanoscale materials, including particles used today in stain-resistant pants and suntan lotions, are generally less than 100 nanometers in diameter. A sheet of paper, in comparison, is a whopping 100,000 nanometers thick.

Nano boosters herald the potential for small-scale materials to have enormous effects on much of what we do, including develop drugs and sop up toxic pollution. Nano materials already are used in at least 80 consumer products made by U.S. companies, according to Small Times Magazine, which covers the nanotechnology industry.

U.S. regulatory agencies, including the EPA and Food and Drug Administration, say their regulatory options are adequate to cover nano-engineered materials, said Clayton Teague, director of the National Nanotechnology Coordination Office. Officials continue to evaluate the field as more studies are done, and updating the rules or adding ones now would be premature, he said.

"Until we have information that there are truly inadequacies in existing regulations, any additional regulations beyond what we already would have would be burdensome to industry and the advancement of the field," Teague said.

The sometimes unpredictable behavior of materials at the nanoscale does give some pause. Even seemingly subtle changes in the size of particles can precipitate wildly different changes in the basic properties of those materials, including their toxicity.

Laws like the Clean Water Act or Toxic Substances Control Act lack either the authority or resources - or both -- to adequately address those sorts of peculiarities inherent to nanotechnology, Davies said.

Others -- like the Food, Drug and Cosmetic Act -- are probably adequate when it comes to governing the safety of nano materials in food and drugs, the report said. But that act falls flat when it comes to cosmetics, which remain essentially unregulated by the FDA, Davies and others said.

"It's a list of things they can't do because the list of things they can do is practically nonexistent," Davies said.

Davies said he hopes the report will spark discussion, in part to help skirt the pitfalls that have befallen other emerging technologies.

"We've learned with biotech and nuclear power, if there are not adequate safeguards, the public is going to resist the technology and it won't meet its potential," Davies said.