

# Nano World: New nanotech law called for

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A new law specifically targeting nanotechnology could prove necessary to regulate its potential risks and promoting its continued development, experts told UPI's Nano World.

"If one takes a 10 or 20 or 30 year perspective, the idea of a new law is not a radical proposition. In fact, it could be the best way to deal with what are going to be significant uncertainties and increasing complexities around this technology," said David Rejeski, director of the Project on Emerging Nanotechnologies in Washington, at the announcement of a new report from the group regarding the existing regulatory framework for nanotechnology.

Now was the time to think about how best to regulate nanotechnology, "before there are thousands or hundreds of thousands of potential products in the marketplace, before industry has invested millions, tens of millions or hundreds of millions into ramping up production, and before there have been any problems, accidents or mishaps that can undercut public confidence or optimism about this technology," Rejeski added.

Nanotechnology "is being commercialized at an accelerating pace. Roughly 60 or so consumer products are out there now and several hundred other kinds of applications," said Terry Davies, a senior advisor at the Project on Emerging Nanotechnologies. "The extent to which it promises to either ameliorate or solve most of the major problems that we face, going from cancer to cleaning up Superfund sites to dealing with an oil shortage, and everything in between."

Davies coauthored the plan that created the Environmental Protection Agency. He analyzed the existing regulatory framework of laws and agencies that might impinge on nanotechnology and found most of it demonstrated three significant kinds of weaknesses.

First, most statutes or programs failed to address the fact that nanomaterials "behave differently from materials of ordinary size," Davies said. "The assumption built into most environmental statutes and the health ones as well is that there is a pretty direct correlation between volume or weight on the one hand and toxicity and exposure on the other hand. That isn't true for nano."

Next, many programs lacked resources. For instance, the Consumer Product Safety Commission, which administers the Consumer Product Safety Act, "had a staff of about 900 or so in 1980, and it's now down to 446 to deal with all consumer products in the United States," Davies said. "Four hundred or so is not enough to answer the mail."

Finally, statutes often had major shortcomings in legal authority when it came to monitoring nanotechnology adequately, Davies contended. For instance, the Toxic Substances Control Act has quite broad coverage and is often considered the primary vehicle for regulating nanotechnology. Davies, who wrote the original version of what became TSCA, said it was "very flawed" because an "implicit assumption of the act is that no information means no risk. In fact, TSCA provides a disincentive for manufacturers to generate health and safety and environmental information, and if there's anything we need in dealing with nanotechnology, it's a regulatory system that encourages the generation of information."

Instead of making do with existing laws to address the potential risks nanotechnology poses, Davies argued that a new law specific to nanotechnology was necessary. Such a law should focus away from

products already well covered by existing regulation, such as with drugs, food, medical devices and the like, and on consumer products such as cosmetics.

For instance, "the cosmetics part of the Food, Drug and Cosmetics Act is totally toothless. For all practical purposes, cosmetics are not regulated in this country," Davies said. At the same time, nanomaterials are increasingly finding their way into cosmetics, "and we have no idea of what adverse effects, if any, they are having." Nanomaterials are also finding their way into consumer products such as clothing, golf clubs and tennis racquets, he noted.

Davies advocates a law that places the burden on nanotech manufacturers to show their products are safe, as opposed to a law like TSCA, where the burden of proof lies on the agency to show a product is risky. For instance, all products containing nanomaterials would have to go through testing and reporting requirements most likely established via international coordination. The government could take steps to ease the burden such requirements would have on smaller companies, he added.

A new law would also require manufacturers to submit sustainability plans that would show a product would not present an unacceptable risk. Moreover, such a law should deal with product issues such as imports, exports, national defense and citizen lawsuits, Davies said.

Not all nanotechnology analysts agree new legislation is necessary. "New regulations would be a disaster at this point," said Sonia Arrison, director of technology studies at the Pacific Research Institute, a San Francisco-based public-policy think tank. "Nanotechnology, the manipulation of matter at the level of individual atoms and molecules, offers the greatest benefits for society if left to grow through modest regulation, civilian research, and an emphasis on self-regulation and responsible professional culture."

While Davies applauded voluntary programs for nanotechnology oversight that the EPA has established for manufacturers, he does not feel voluntary programs offer a long-term solution. While such programs can be put in place quickly, "the question is, do they include the people you really want to include, the really bad actors who don't care very much about being responsible corporate citizens," Davies said.

New York-based nanotechnology analyst firm Lux Research's Vice President of Research Matthew Nordan said a concern regarding new regulation was that "the net effect would be to slow things down." A new law could be "very onerous and perhaps premature, given the limited knowledge of the impact of nanomaterials. What we know about the safety of fullerenes, for example, is all over the map, from highly dangerous to probably benign. A lot of existing regulations can be tweaked or interim measures can be imposed for responsible development."

Davies argued that waiting for a slowdown in nanotechnology before instituting regulation would lead to years of delay, opening the public and industry to years of risk.

"You've got a technology or set of technologies in a field that's evolving very rapidly and will continue to evolve very rapidly for the foreseeable future. So even if we're talking about putting something in place 20 years from now, whatever you put in there is going to be obsolete pretty fast also," Davies said. "One of the characteristics which hopefully you can incorporate in anything that you do in the way of legislation is an ability to adapt fast, to change fast, to keep up with the changes in the technology itself."

Davies cautioned that a nanotech law was unlikely unless there was a pretty strong consensus that it was needed. Even if dialogue concerning a nanotech law does not lead to legislation, it could help "identify ways in

which we can get an oversight system that is adequate to deal with the technology," he said. In the meantime, programs could coordinate, amend and strengthen existing laws to help manage nanotechnology.

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