

Risk Policy Report

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Federal Inaction Prompts States To Spark Green Chemistry Initiatives

State leaders are working to spark development of an emerging field known as green chemistry, which aims to replace toxic chemicals with more environmentally benign alternatives, in efforts environmentalists say come as a response to a lack of EPA and other federal leadership to reduce toxic chemicals.

Maine and Michigan are already examining ways to promote green chemistry use through incentive-based programs, encouraging research and development in the field. California is exploring a legislative approach to encourage green chemistry as well, with draft legislation expected in 2007. Similar efforts to reduce toxic chemicals and promote green chemistry may be mounted in New York, Vermont, Washington and Massachusetts, among other states, activists say, adding that the state efforts stem from increasing concerns that the federal government is not doing enough to regulate toxic chemicals.

"The starting point is that there is a problem: chemicals are allowed to come on to the market without manufacturers having to demonstrate that chemicals are safe for human health and the environment," one California activist notes. "It's clear nothing is going to happen at the federal level, and I think that's why so many states are going to take action."

Environmentalists suggest the state programs represent a groundswell of support for reforming the federal Toxic Substances Control Act (TSCA), which they argue does not provide adequate mechanisms to regulate potentially toxic compounds.

Other activists say the recent state efforts to reduce toxic chemicals will likely raise new questions about the role of the state in the economy and the market. But these green chemistry initiatives are still so new that it is not clear what those questions will be. "There's a power vacuum that's been left by the federal government . . . and states are stepping into it," according to a second California environmentalist.

Industry groups are supporting the current green chemistry initiatives, noting that many major companies are already developing and applying green chemistry techniques. For example, many industries are moving away from oil-based plastics and polyester fabrics to corn-based or other bio-based plastics.

But industry officials are wary of the movement as well, concerned that calls for chemical reform may lead states to consider adopting approaches similar to the pending European Union (EU) Registration, Evaluation & Authorization of Chemicals (REACH) program, which industry officials say is too costly and unwieldy to be effective.

There is some effort to promote green chemistry at the federal level, sources note. For example, the House recently passed a bill calling for increased funding and an interagency working group to research the issue, co-chaired by EPA and the National Science Foundation. And EPA has its own green chemistry program in place, meant to encourage academic and industrial pursuit of less hazardous chemicals through grants, awards and education programs.

But environmentalists say the federal efforts are not enough, and some say increased federal dollars and perhaps regulatory reform will be necessary to advance the field of green chemistry.

As a result, the state efforts come as frustrations with federal toxics laws and EPA management of toxic chemicals are spreading through the environmental community. Environmentalists and Democrats are increasing calls for TSCA reform, emphasizing that the law has not been updated since its passage in 1976. As a result, they are boosting pressure on states to take the lead on toxic chemical management.

Several states are seeking ways to promote new research in the field. For example, Michigan Gov. Jennifer Granholm (D) issued an executive directive Oct. 17 calling for state agencies to determine new ways to provide incentives to industry and academia to pursue green chemistry programs. The document highlights 12 principles for green chemistry, adapted from EPA materials.

"The field of 'green chemistry' holds promise as a way to both reduce the use of hazardous substances and to promote sustainable economic development in Michigan," the directive states. Relevant documents are available on InsideEPA.com.

The directive also calls on the state's Department of Environmental Quality (DEQ) to create a Green Chemistry Support Roundtable to determine how best to promote green chemistry. The roundtable will consist of public health professionals, industry representatives, environmentalists, local government leaders and members of the general public.

A Michigan environmentalist says the effort should provide a much-needed boost to the state economy, which is jeopardized by the sagging automotive industry there. "Our focus is on changing the material economy from one reliant too much on petroleum and toxic chemicals to one that's bio-based and green," the source says.

And Maine Gov. John Baldacci (D) issued a similar executive order Feb. 22, calling on the state Department of Environmental Protection to lead a task force to "develop recommendations for a more comprehensive chemicals policy that requires safer substitutes to priority chemicals in consumer products and creates incentives to develop safer alternatives, on a state and regional basis."

A Maine-based public health advocate says the state recognizes green chemistry as a chance to boost the economy, and argues the federal government should do more to prioritize green chemistry research. "Green chemistry is inextricably linked to an innovative economy, research and development, and economic development," the source says. And, while the

federal government is contributing to the promotion of green chemistry, "There is a desperate need for more federal funding."

California is also considering efforts to promote green chemistry, prompted by a report commissioned by the state legislature called Green Chemistry in California: A Framework for Leadership in Chemicals Policy & Innovation, which contains suggestions for promoting green chemistry through policy initiatives. State Sen. Joe Simitian (D) has held two hearings on the topic, and environmentalists and state officials predict a legislative push there in 2007, though it is still too early to predict what the legislation might look like, sources say (Risk Policy Report, Oct. 31, p5).

Meanwhile, the House Sept. 26 passed a bill, H.R. 1215, calling for an interagency working group on green chemistry, as well as federal funding for research and development. The Green Chemistry Research & Development Act of 2006, introduced by Rep. Phil Gingrey (R-GA), gained bipartisan support, as well as support from the chemical industry and environmentalists.

But a sister bill in the Senate has made no progress since its introduction in June 2005. A Senate source says the bill's progress in the current Congress will depend on the outcome of the elections. If Democrats take one or both chambers, the bill will likely stall, the source says. EPA has its own green chemistry program, consisting of research grants and a presidential green chemistry award. Environmentalists and researchers say EPA is a leader in providing green chemistry incentives, but are concerned the agency's commitment to the field is declining.

"They have historically . . . been huge in green chemistry," according to one leading green chemistry researcher, highlighting the presidential green chemistry award program. However, "in my view, support from EPA has declined in the last few years."

Some of the frustrations expressed by environmentalists center on TSCA, which they say is outdated and lacks strong enforcement provisions against potentially toxic chemicals. They also charge EPA could apply a broader interpretation of the law to help filter out harmful toxins.

Recently, three top environmental leaders resigned from EPA's chief toxics advisory panel in order to pursue other chemical reform efforts because they felt the agency failed to consider whether it could better regulate chemicals under TSCA provisions (Risk Policy Report, Oct. 10, p1). The environmentalists say they are pursuing new avenues of chemical reform, including working with states and industry officials friendly toward green chemistry objectives.

While no regulatory program addressing such concerns exists, environmentalists are eyeing recent developments in the EU's REACH program. The EU's Environment Committee recently issued a report on the legislation calling for substitution of hazardous chemicals when safer alternatives exist.

Environmentalists say the language provides a regulatory driver for safer chemicals in the marketplace. "One of the clear objectives the European Union has for REACH is to have government play a larger role in what

chemicals reach the market," the second California source notes. "There is a group of [nongovernmental organizations] thinking about this pretty hard," but they have not yet decided to push for a similar legislative approach in the United States, the source adds.

But industry officials say REACH is unnecessarily burdensome and expensive. For example, under REACH industry would bear the burden of proving their chemicals are non-toxic, whereas current U.S. law requires regulators to show chemicals are toxic before implementing regulatory requirements. "They've built a brick airplane, and we don't see how it will fly the way they hope it will," the source says. Industry would likely oppose any state efforts to "harmonize" state policy with REACH if the issue ever arose, the source says.

Industry sources argue that voluntary programs, such as EPA's high production volume (HPV) challenge program, are sufficient to screen out toxic chemicals. Under HPV, chemical companies commit to submitting certain toxicity data for chemicals produced in large amounts in the United States.

Another industry source agrees that green chemistry should be encouraged without the use of regulations. "We see this as an issue where mandatory regulations don't make any sense at all," the source notes.

And others following the issue also have concerns about efforts to force regulatory drivers upon industry. The leading green chemistry researcher notes that while regulating toxic chemicals is important, forcing industry to utilize green chemistry could have negative ramifications in the field. Such a move could cause a backlash from industry resistant to regulation and promote a hostile attitude toward the academic pursuit of greener chemicals, the source says.

"Green chemistry policy would force industry to do more testing," the researcher says. Green chemistry "isn't us against them, it's working together."

Chemists would more likely be persuaded by rewarding incentives rather than strict regulations, the researcher says, highlighting Michigan's proposal as a strong example of how to approach the issue. The researcher agrees more federal funding would be beneficial and says the House bill is a strong start. The researcher also notes the government spends large amounts of money on nanotechnology, a field aimed at manipulating small particles to create all new chemicals that many say has the potential to create new green chemicals. If nanotechnology research is also directed to be green, the funding could go hand in hand, the researcher says.

EPA did not return a call seeking comment. -- Trevor Knoblich

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