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California Weighing Experts' Dozens Of Green Chemistry Options

California's Environmental Protection Agency (Cal/EPA) is evaluating dozens of options for its landmark green chemistry initiative, including some that could require chemical manufacturers and importers to provide the state agency with the same sort of information required by Canadian and European chemical management authorities, according to a new report.

The Cal/EPA effort is being closely watched as the most aggressive state effort to advance the cause of green chemistry, a major goal of environmentalists and an emerging new field with strong EPA support.

A Scientific Advisory Panel (SAP) comprising a diverse group of toxicologists, public health experts, activists, engineers, academics and representatives from industry last week presented Cal/EPA's Department of Toxic Substances Control (DTSC) 38 "options" for advancing California's green chemistry initiative. /The document is available on InsideEPA.com./

Green chemistry seeks to transform chemical manufacturing so that chemicals are designed from the start to be less toxic or even benign, coupled with stricter requirements for those chemicals considered to be highly toxic. Last year California Gov. Arnold Schwarzenegger (R) announced a plan to develop a far-reaching green chemistry strategy that would include a cradle-to-grave approach to chemicals management.

A SAP source says the panel's job "was to leave no stone unturned" and to find "viable options" for the state, but the panel was not asked to come to a consensus or prioritize the results. In the end, the panel offered a series of options on both the "supply side" of green chemistry, focusing on education and research, and the "demand side," focusing on policy and regulatory issues.

One UC-Berkeley green chemistry expert, who follows the issue but was not on the panel, says that "if California wants to seize this opportunity," the state needs to "implement options that have a regulatory component to drive demand." Having chemical manufacturers disclose more information about their products will help in "leveling the playing field" in the development of the market, the Berkeley source says.

The SAP looked at options that would "encompass chemicals policy elements that will drive demand for these greener chemicals, processes and technologies," according to the report. These options include the development of a framework to identify chemicals of concern and to evaluate chemical uses by hazard, exposure and risk, because certain uses may be of greater concern than others.

A second panel member, also associated with UC-Berkeley, applauds the panel for acknowledging that there are structural problems with chemical management, particularly

the hazards resulting from data, safety and technological gaps. The source also says looking at both supply- and demand-side options helped “link the chemistry to the policy and legal drivers” by illustrating the need to supplement research into green chemistry with governance and a functioning regulatory system.

The panel also suggested that California should require manufacturers and importers of chemicals to provide specific information about the hazards and uses of their products and provide the same information to the state that they provide to other regulatory authorities in Europe and Canada. “California could borrow this ‘no data/no market’ approach” from the Europe’s Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) legislation, which would result in manufacturers providing “certain information to Cal/EPA, downstream users, and the public,” the report says.

The panel points out that 10 percent of the state’s exports to the European Union in 2006 were chemicals, estimated at \$2.4 billion, and says that California could benefit from the information these exporters will need to provide under the REACH guidelines.

Other options include suggestions to systematically identify safer alternatives to hazardous chemicals and to phase out existing chemicals considered hazardous, with one option specifically mentioning chlorinated organic solvents, which include carcinogens such as trichloroethylene, perchloroethylene and methylene chloride.

Options offered by the SAP on the supply side involve integrating the concept of green chemistry into education, including the development of a green chemistry curriculum for K-12 students, at the undergraduate level, for advanced chemistry students and at business schools.

The SAP panel source says it is important to look at green chemistry as a jobs creation initiative, as well as an opportunity to “come up with a pipeline for new technologies.” The source also says that the education options are important to get young people interested in science to start exploring ways to help solve the problems.

“The sticking point is usually that there are no viable alternatives” to the toxic chemicals, the source says, adding that California seemed to “recognize the need to work on the supply side” of the equation. For example, if one chemical is banned, it makes it easier for industry if there are multiple alternatives available for use, the source says.

The panel also suggests that the state identify all green chemistry efforts currently underway in California in an attempt to find gaps in research and technology, as well as support research and development in the area of green chemistry, develop green chemistry infrastructure and foster partnerships between industry and academia.

The slate of options is part of the second phase of California’s ambitious green chemicals program. Last year, during phase one, stakeholders amassed more than 800 options for the program, which were compiled into a report and released in January. In addition to the SAP report, the second phase of the project has included the formation of inter-

agency teams to explore “key elements” and align the initiative within existing government programs, as well as five public workshops on “draft policy frameworks.”

According to a DTSC source, all three of these components from phase two will be synthesized into a public draft document, which, after getting feedback from the stakeholders, will be submitted as an internal “action request” to Linda Adams, the secretary for environmental protection in California. The original deadline for that “action request” was July 1. The source says the process is roughly 10 weeks behind schedule.

California is a bellwether state in the field of green chemistry, but other states are also looking at the benefits of green chemistry. In 2006 Michigan Gov. Jennifer Granholm (D) signed an executive directive to promote green chemistry in relation to economic development and human health, while the state of Maine also has developed a comprehensive green chemistry program, sources say. Still, the SAP source says, only California has put together such a massive program and started developing documents to support the initiative. /-- Aaron Lovell/

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