CALIFORNIA INDUSTRIAL HYGIENE COUNCIL

Advancing public policy to improve the health and safety of workers and the community.

California's Green Chemistry Initiative— The Challenge Ahead

By California Industrial Hygiene Council (CIHC)

Given its potential impact on workers and the public alike, the California Industrial Hygiene Council (CIHC) has been monitoring the development and evolution of the Green Chemistry Initiative. The following brief provides an overview of the Initiative itself, its provisions, legislation, companion regulations, and timeframes for execution. It also suggests what you can do to become engaged in the process and help influence the development of sound regulations.

By way of background, the CIHC was founded in 1990 to establish a legislative presence in California to represent the Industrial Hygiene profession. The field of Industrial Hygiene is dedicated to the anticipation, recognition, evaluation, and control of occupational and environmental health hazards. CIHC, representing the five Local Sections of the National American Industrial Hygiene Association (AIHA) in California, views its mission as bringing good science to the legislative and/or regulatory table which impacts the health of both workers and the public. It is affiliated with the National AIHA, a 12,000 member organization, as well as the International Occupational Hygiene Association (IOHA), which represents the global community of Occupational Hygiene organizations in over 26 countries. In addition, many of our members assume environmental, health & safety roles within their respective organizations which encompass government, academia, industry, labor, consulting and non-profits.

Background:

Despite environmental and occupational legislation over the past thirty years, some experts believe that chemical policy in the U.S. has not been adequately protective of human health or the environment. For example, the 1976 Federal Toxic Substances Control Act (TSCA), the most notable of the chemical policies, does not require producers to examine comprehensively or fully disclose information about the hazardous products they produce, creating gaps in the understanding of the health and environmental effects of many of the 83,000 substances listed on the TSCA inventory. Yet, these substances come into contact with people—in the workplace, in their homes, through their use in products, ultimately entering the earth's ecosystems at some point during their lifecycle. Only about 1,000 chemicals and pollutants are presently regulated by federal statute.

States, including California, have lacked a comprehensive means to collect data on, evaluate or regulate toxic materials. Instead, as concern over health and environmental effects of toxics has risen, chemicals have been considered on a case-by-case basis or solely regulated upon disposal. Over the years, several

state agencies have been delegated limited authority over the same chemical but in different products or at different parts of the product's lifecycle—design, manufacturing, labeling, sale, use, exposure, recycling and disposal. This fractured approach has created an apparent ineffective patchwork process for identifying, evaluating and regulating chemicals in commerce.

According to the University of California (U.C. Centers for Occupational and Environmental Health (COEH), 2008 Green Chemistry: Cornerstone to a Sustainable California), chemical and pollution related diseases among children and workers in California cost the state's insurers, businesses and families an estimated $2.6 billion in direct and indirect costs per year. The report states that, in 2004 alone, more than 200,000 California workers were diagnosed with deadly, chronic diseases—such as cancer or emphysema—attributable to chemical exposure in the workplace. The report goes on to say that, over that same year, 240,000 cases of preventable childhood diseases related to chemical exposures were diagnosed.

The 20th century approach to environmental prevention focused on pollution—air emissions, the discharges of contaminants to surface and groundwater, and the generation, storage and disposal of solid and hazardous wastes. While "pollution prevention" programs focus on reducing pollutants at the source, many of them do not focus enough on design issues that are the "core" of green chemistry.

California's Green Chemistry Initiative:

In 2007, Governor Schwarzenegger launched the California Green Chemistry Initiative stating that "a comprehensive and unified approach is needed to ensure good, accountable policy". He encouraged the Legislature and all interested parties to participate in the development of this Initiative. In April 2007, Cal/EPA's Department of Toxic Substances Control (DTSC), led by Director Maureen Gorsen, was tasked with developing the Initiative.

The goals of the Green Chemistry Initiative include developing a consistent means for evaluating risk, reducing exposure, encouraging less toxic industrial processes, and identifying safer, non-chemical alternatives. Green Chemistry is a fundamentally new approach to environmental protection, transitioning away from managing toxic chemicals at the end of the lifecycle, to reducing or eliminating their use from the start.

Final Report, Dated December 2008:

On December 16, 2008, Cal/EPA's DTSC issued the California Green Chemistry Initiative—Final Report with the final recommendations of the Green Chemistry Initiative. The recommendations are the result of Cal/EPA's collaboration with experts worldwide to develop the best options for a comprehensive chemical policy. It is the culmination of an 18-month process that included dozens of stakeholder workshops and input. The Report (available at www.dtsc.ca.gov/greenchemistry) includes six recommended actions which comprise a new Green Chemistry policy framework for California. The intent of these recommendations is to reduce risk to public health and the environment, and move the state toward a clean, green, sustainable economy by minimizing toxics in products, increasing information on chemicals in products and creating new technologies and new markets. These six recommendations include the following:

1. *Expand Pollution Prevention*
   - Expand pollution prevention and product stewardship programs to more business sectors.
   - Broaden technical assistance programs beyond hazardous and solid waste reduction by adding green chemistry and engineering lifecycle approaches.

- Create incentive programs to assist California businesses that adopt green chemistry and engineering practices.

2. *Develop Green Chemistry Workforce Education and Training, Research and Development and Technology Transfer*
   - Incorporate green chemistry and green engineering principles in California's public education and the existing Education and the Environment Initiative (EEI) program.
   - Enhance scientific curricula in green chemistry, engineering, and materials sciences at California's universities and colleges.
   - Develop postsecondary and career technical training programs for lab technicians for new clean industries and the materials sciences industries.
   - Foster research and development in new green materials and technologies.
   - Encourage establishment of green chemistry technology transfer centers ("R&D Incubators") for rapid commercialization.
   - Create programs to increase global market opportunities for California green businesses.
   - Create high-skill, high-wage green worker jobs for Californians.

3. *Create an Online Product Ingredient Network*
   - Require consumer friendly online disclosure of chemical ingredients for products sold in California, while protecting trade secrets.
   - Create a low-cost and easily-accessible online web portal for product ingredients.

4. *Create an Online Toxics Clearinghouse*
   - Establish an online clearinghouse for chemical toxicity and hazards.
   - Appoint a Green Ribbon Science Panel to prioritize chemicals of concern and data needs.
   - Enter into data-sharing agreements with other countries and states to link scientific studies worldwide and avoid costly duplication of effort.

5. *Accelerate the Quest for Safer Products*
   - Create a systematic, science-based process to evaluate chemicals of concern and alternatives to ensure product safety.
   - Task the Environmental Policy Council with oversight to ensure multimedia (air, land, water) concerns are addressed.
   - Pursue consistency in enforcement statutes governing toxics in products.

6. *Move Towards a Cradle-to-Cradle Economy*
   - Set a voluntary goal to achieve "Cradle-to-Cradle" economy by 2050.
   - Establish a California Green Products Registry to develop green metrics and tools (e.g., environmental footprint calculators, sustainability indices) for a range of consumer products and encourage their use by businesses.
   - Direct state agencies to lead by example in the purchase of sustainable products.

California Green Chemistry Legislation:

On September 29, 2008, Governor Schwarzenegger signed two green chemistry bills (AB 1879 and SB 509) to establish a broad Green Chemistry Policy for the State of California and create a mechanism for public information, regulatory review of toxic chemical uses, and evaluation of safer alternatives for those products sold in California. These two bills directly coordinate with Cal-EPA DTSC's final policy recommendations.

AB 1879 (Feuer and Huffman) authorizes the DTSC to establish a process, including a multimedia life cycle evaluation, to identify and prioritize chemicals of concern, evaluate alternatives, and specify regulatory responses. AB 1879 requires the DTSC, by January 2011, to adopt regulations establishing a process by which chemicals, or chemical ingredients, in products may be identified and prioritized for consideration as being chemicals of concern. The bill also establishes a Green Ribbon Science Panel to provide implementation advice and expands the Environmental Policy Council to oversee critical program activities. The regulations also require the DTSC to specify actions it may take following the completion of the analysis, including:

- requirements to provide additional information;
- requirements for labeling, or other type of product information;
- controlling access to, or limiting exposure;
- managing products at the end of their useful lives, or funding green chemistry challenge grants; and
- restrictions on the use of chemicals of concern in the products, or prohibitions on use.

The second bill, SB 509 (Simitian), requires the DTSC to establish a Toxics Information Clearinghouse for the collection, maintenance, and distribution of specific chemical hazard traits and environmental and toxicological end-point data. The DTSC shall make the clearinghouse accessible to the public through a single internet web portal. Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA) would be required, by January 1, 2011, to evaluate and specify the hazard traits and environmental and toxicological end-points and any other relevant data that are to be included in the Clearinghouse.

The bills can be found at:
(AB 1879) http://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_1851-1900/ab_1879_bill_20080820_amended_sen_v94.pdf

(SB 509) http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0501-0550/sb_509_bill_20080822_amended_asm_v89.pdf

Development of Regulations to Implement the Green Chemistry Initiative:

The DTSC Regulatory Team is in the process of soliciting comments and suggestions for regulatory text at locations throughout the State during their Safer Alternative Regulations Workshops which are being conducted during the first quarter of 2009. During the initial Workshops, attendees provided input to draft regulations that created a process for identifying and prioritizing chemicals of concern and created methods for analyzing alternatives to existing hazardous chemicals. Suggestions made during the Workshops were posted on the Green Chemistry Wiki and DTSC's website.

The Wiki is intended to be an innovative approach to involving the public and a way to accelerate the completion of the rulemaking process within the two remaining years of the Schwarzenegger Administration. The Wiki allows anyone to access and contribute or modify content, using simple on-line tools. DTSC has posted a series of questions on the Wiki related to the following four key areas of regulatory focus:

1) *Regulatory Trigger:* When is the requirement to do an Alternatives Analysis triggered?
2) *Alternatives Analysis:* What must be included in this analysis? Who performs it? How quickly must it be performed?
3) *Regulatory Response:* What are the appropriate regulatory outcomes based on the Alternatives Analysis?
4) *Compliance, Auditing and Enforcement:* What are possible options for ensuring compliance with the law's goal of moving toward safer alternatives for consumer products?

The regulatory development schedule is very aggressive. The first areas of focus for the Workshops include the development of regulations for the Toxics Information Clearinghouse (January 29, 2009), and Safer Alternatives (two in February, and three in March and April). Further information on the Workshops can be found at: http://www.oehha.ca.gov/multimedia/green/pdf/012909mats.pdf and http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/upload/GC_218_Workshop_Notice.pdf

Green Chemistry Regulatory Development Update:

The following was provided by the ORC Worldwide.

Representatives from ORC Worldwide and CIHC representatives attended the March 17, 2009 DTSC third of five scheduled public Workshops in Sacramento to discuss implementation options and issues as part of the Safer Alternative Regulation development process. This was the first Workshop with robust participation by industry representatives, which contributed to a more balanced discussion than occurred at the earlier Workshops in Berkeley and Chatsworth.

A number of questions were posed by DTSC Staff about the safer alternatives assessment, e.g. what attributes should be considered and compared, and the identification and prioritization of chemicals of concern. It was represented that decisions had not yet been made on these issues, and that public input would be seriously considered. Also, an effort is underway to restructure the Green Chemistry Wiki to include separate areas for regulatory concepts and discussion, rather than a long string of dialogue that is proving unmanageable.

DTSC Staff was asked if worker safety was one of the issues they would be addressing, and their answer was unequivocally affirmative. They referenced specific language in AB 1879, one of two pieces of enabling legislation. It requires the DTSC to coordinate preparation of a multi-media lifecycle evaluation for the proposed regulations that includes worker safety impacts.

The Staff further indicated that, if a broad-based definition of "consumer product" is adopted, worker safety issues would most likely be included in the regulatory scope. For example, manufacturers/ processors of intermediate products for further processing into finished products might be considered "consumers."

The involvement of worker safety impacts is emerging as an area of concern for ORC, CIHC and other interested parties, such as employers and OSH professional organizations. These parties participated in the recent Cal/OSHA PEL-review process improvement effort, and are closely following the current review efforts. The question is whether this process could be significantly changed or adversely impacted by Green Chemistry regulations. Some industry workshop participants voiced objections to DTSC involvement in worker safety issues.

Not surprisingly, Labor, NGO, and academic representatives urged DTSC to address worker exposure issues in these regulatory development efforts. It should be noted that OEHHA is playing a key role in developing toxic endpoint parameters for the Toxic Clearinghouse portion of the Green Chemistry program, and will consult with DTSC on the life cycle evaluation. Recent proposed legislation, AB 515 et al., unsuccessfully attempted to increase OEHHA's role in the PEL-setting process, so this may be another effort to accomplish that goal.

There is one more public Workshop scheduled for April 21 in Berkeley. ORC Worldwide attended the April 1, 2009 workshop, while both ORC and the CIHC plan to attend the April 21, 2009 Workshop.

DTSC Staff is also expressing a willingness to meet with interested parties for further discussion of the issues. There is no information about the impact on this development process of the recent resignation of Maureen Gorsen, the previous DTSC Director. The enabling legislation requires that regulations be developed by 2011, so the Staff's efforts continue to have a sense of urgency.

What Can You Do?

Your engagement up front is critical! You can:

- Attend the public meeting on April 21 in Berkeley.
- Sign up for the Green Chemistry listserv to monitor activities and progress
- Share your thoughts and ideas on the publicly held Wiki.

Additional Information:

Please contact the following for further information:

Howard Spielman, CIH, PE
President, CIHC
hspielman@healthscience.com
P: (714)-220-3922

Chris Laszcz-Davis, MS, CIH, REA
Vice-President, CIHC
ChrisLD@EQ-Organization.com
P: (925)-330-1774