



May 15, 2008

Green Chemistry Initiative  
California Department of Toxic Substances Control (DTSC)  
By email: [Green.Chemistry@dtsc.ca.gov](mailto:Green.Chemistry@dtsc.ca.gov)

RE: California Green Chemistry Initiative Request for Comments on Specific Questions for Industry, Government, and Non-Governmental Organizations: How to Strengthen Consumer Protection in California

IPC – the Association Connecting Electronics Industries and the California Circuits Association (CCA) are pleased to have this opportunity to comment on the California Green Chemistry Initiative. In general we are concerned that this initiative, which is being undertaken in furtherance of the state’s goals of promoting a cleaner and safer environment for Californians, may not be considering the full environmental, economic, and social impacts of its actions. Our responses to your specific questions regarding how to strengthen consumer protection in California follow.

**1. Do you represent industry, government, or a non-governmental organization?**

IPC is a global trade association for the electronic interconnection industry, and represents more than 2,600 member companies around the world, including 347 in California. IPC members manufacture printed circuit boards and electronic assemblies, which are used in a variety of electronic devices including computers, cell phones, pacemakers, and sophisticated missile defense systems. The industry is vital to the U.S. economy, employing more than 350,000 people and exceeding \$44 billion in sales. Although IPC members include electronic giants, sixty percent of IPC members meet the Small Business Administration’s definition of “small business.”

**2. Do you agree that there are consumer exposure risk(s) associated with Chemicals of Concern in consumer products?**

There may be the potential of consumer exposure associated with chemicals of concern in products. However, we caution DTSC against looking at only part of the picture, which can lead to inaccurate or misleading conclusions. The mere presence of a chemical of concern in a product does not mean that risk to human health or the environment is inevitable. To analyze the associated risk with chemicals of concerns in consumer products, you must consider both the hazardous properties of a chemical and the likelihood of exposure to that chemical.

**If so, what entity/entities (e.g. industry, academia, federal and/or state agencies) is/are/should be responsible for identifying the risk(s)?**

Since US EPA is already engaged in a trilateral agreement between Canada, the U.S. and Mexico to assess and manage chemicals, EPA should be responsible for identifying any risks associated with chemicals of concern. Under ChAMP (Chemical Assessment and Management Program), EPA will screen, prioritize, and assess nearly all chemicals in U.S. commerce. EPA will develop hazard characterizations, risk characterizations, and risk-based decisions on how to manage these chemicals. EPA has already committed a significant amount of resources to meeting its ChAMP commitments. DTSC cannot justify expending the limited funding available to California to duplicate efforts already undertaken by the U.S. government. We are concerned that California's Green Chemistry Initiative could undermine the existing ChAMP Program.

**3. Are you aware of any standards/permissible levels, established either in statute or regulation, for consumer products related to Chemicals of Concern? Are the standards voluntary or mandatory?**

The European Union RoHS banned the use of lead, cadmium, mercury, hexavalent chromium and both polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants in electrical and electronic equipment as of July 1, 2006. Shortly afterwards, California followed suit with its own law (California RoHS) modelled after the EU.

The EU's decision to restrict these chemicals was not based on a complete examination of risk, but instead was based solely on the potential hazards of lead. The exposure element of a risk analysis was never studied. In order to determine risk, both the hazard and exposure of a chemical must be taken into account. In addition to failing to conduct a risk analysis, the EU also failed to conduct a life-cycle assessment of the health and environmental effects of the potential substitutes. As a result, while enormous costs were incurred, the public did not realize any net environmental or human health benefit from the regulation.

Review of the U.S. Environmental Protection Agency (EPA) Lead-Free Solder project<sup>1</sup> illuminates the environmental trade-offs inherent in material substitutions and the benefits of conducting life-cycle analysis. The study evaluated the environmental impacts of tin-lead solder versus lead-free alternative solders. Because tin-silver-copper solder in electronics requires higher processing temperatures than tin-lead solder tens of thousands of solder machines worldwide now operate at higher temperature. The higher operating temperatures required for the manufacture of lead-free electronics has resulted in significantly higher energy usage during manufacturing. The increased energy use associated with manufacturing lead-free

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<sup>1</sup> U.S. Environmental Protection Agency. August 2007. *Solders in Electronics: A Life-Cycle Assessment*. Available at <http://epa.gov/dfe/pubs/solder/lca/index.htm>.

electronics was projected by the study to cause higher air pollution, acid rain, stream eutrophication, and global warming impacts than the tin-lead soldered electronics. EPA's study serves as an important reminder that there are environmental trade-offs when substituting one substance for another.

The DTSC must be mindful of the importance of fully evaluating all life cycle impacts before chemicals are banned or eliminated from use. Furthermore, both hazard and exposure must be considered when determining whether there is a potential risk associated with a particular chemical.

**4. In your opinion, do you think that the mandatory standards/permmissible levels for chemicals of concern in consumer products are enforceable?**

It is very difficult, costly and resource-intensive to develop the test data necessary for enforcement of chemicals of concern in products. We are concerned that the DTSC may use X-ray fluorescence spectroscopy (XRF) as an inexpensive alternative to appropriate testing. It is important to note that the XRF is merely a screening tool and does not produce reliable test results suitable for enforcement action. These devices can produce false positives when testing materials for banned substances and cannot discern critical differences between similar substances. Due to the high cost and resources necessary to conduct testing for chemicals of concern in products, we believe that enforcement may be very challenging.

**5. In your opinion, do you think that the established standards/permmissible levels for chemicals of concern in consumer products are based on sound science and are tailored to the consumer exposure risk(s) that they may impose?**

To put it simply, hazard does not equal risk. We emphasize the importance of risk-based decision-making when evaluating chemicals of concern in consumer products. Too often government has succumbed to unfounded public fears about chemicals and produced regulations like California RoHS, which have questionable benefits. We urge establishment of risk-based standards that are protective of the human health and the environment.

In a chemical risk analysis, risk is seen as a function of the intrinsic hazards possessed by the chemical **and** the likelihood to which someone or something could be exposed to those hazards. This is one of the most important concepts to remember when discussing chemical safety. Even if a chemical has hazardous properties, that does not mean it is likely to cause harm when used in a product because exposure is unlikely. We urge DTSC to follow a scientific risk-based approach for any chemical regulation.

**6. From your perspective, is there an adequate enforcement and compliance infrastructure in place (e.g. staff, equipment, lab resources, funds, etc.) for the Chemicals of Concern in consumer products?**

Due to the prohibitively expensive testing costs and manpower necessary for enforcement of chemicals of concern, we are concerned that there is inadequate enforcement and compliance infrastructure in place in California.

**8. Does an education and outreach program exist (e.g. webpage(s), fact sheets, sample school curriculum, media events, press releases, etc.) for the public consumer? If so, do you believe the existing program is effective?**

The California Legislature has increasingly sought to address public concerns and fears about the environmental and human health impact of consumer products through legislation and regulation. Often the driver behind these legislative and regulatory initiatives is not science or rational analysis. A public outreach campaign is critical to inform the general public about the difference between hazard and risk. The outreach campaign should emphasize the fact that hazard does not equal risk. The likelihood of exposure to those hazards is an important component of risk that must be conveyed to the public. By educating the public, the government can allay fears on chemicals in products without passing unnecessary regulations. An educated public can then support legislation focused on the chemicals that pose a genuine risk to the environment or human health.

**10. Do you believe that the industry is regulated consistently regarding Chemicals of Concern in consumer products?**

Industry is regulated in an inconsistent and piecemeal approach regarding chemicals of concern in products. Regulation is rarely based on science or a risk evaluation. Legislators usually succumb to unfounded public fears instead of scientific data when passing laws to ban chemicals. Sound science and an approach that evaluates risks versus benefits should form the foundation for any regulatory structure adopted by California. The process must also give due consideration to the economic and societal needs of all Californians while also leaving California businesses the flexibility to implement innovative, cost-effective solutions that promote business objectives.

IPC and CCA appreciate the opportunity to submit these comments and urge the DTSC to be mindful of the full environmental, economic, and social impacts of its Green Chemistry Initiative. Should you have any questions, please contact either Fern Abrams, IPC Director of Environmental Policy & Government Relations at [fabrams@ipc.org](mailto:fabrams@ipc.org) or 703-522-0225 or Richard Crowe, CCA Executive Director at [rcrowe@ipc.org](mailto:rcrowe@ipc.org) or 562-493-1037.

Sincerely,

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Director, Environmental Policy & Government Relations