Safer Consumer Products Alternatives Analysis Development

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Client Information
Organization: Safer Consumer Product Program, California Department of Toxic Substances Control (DTSC), California EPA
Website: http://www.dtsc.ca.gov/SCP/index.cfm

Problem Statement
Many consumer products contain chemicals that are known to be detrimental to human health and the environment. However, due to the current lack of regulation, chemical content disclosure and consumer awareness, most manufacturers have little incentive to replace chemicals of concern (COCs) with safer alternatives. AB 1879\(^1\) required DTSC to develop the Safer Consumer Products Regulations\(^2\) that established a process for identifying products that pose high risk to human health and the environment. The regulations also require manufacturers to evaluate safer alternatives to COCs in named products by following an Alternatives Analysis (AA) protocol and considering the impacts of the COCs and alternative formulations from a life cycle (LC) perspective. By integrating life cycle thinking into the AA, manufacturers can avoid shifting environmental burdens and making environmentally unfavorable substitutions.

Although well-developed guidelines exist for conducting chemical alternative (switch-out) appraisals (such as Greenscreen and EPA’s DfE) and multiple case studies are available for those, little guidance exists for fully incorporating life cycle considerations into a comprehensive AA evaluation. Two sources will be of value to initially evaluate as a starting point are from the IC\(^2\) and REACH authorization guidelines.

Project Objective
The Bren Group Project team will work with DTSC to develop guidelines for considering life cycle impacts in Alternative Analyses and prepare case studies. DTSC will release five specific product/chemical combinations of interest before March 28, 2014. (The list of candidate chemicals can be found at http://www.dtsc.ca.gov/SCP/ChemList.cfm)

The Bren team will begin analyzing two of the five named products (e.g. lead in lipstick) selected from DTSC’s product list and their alternatives (many known alternatives should be listed in the product announcement dossier and discovered during the

\(^1\) http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/upload/ab_1879_GCI.pdf
\(^2\) http://www.dtsc.ca.gov/SCP/index.cfm
subsequent Department workshops). Products assessed should be from the two types, one a formulated product and one an assembled/composite product. Assessing the life cycle implications of these two different product types will help differentiate the steps and procedures outlined in the guidance.

Specific tasks include
A. Gathering product information regarding COC content, life cycle inventory, and life cycle impact analysis for the named product and alternatives
B. Identifying applicable methodologies for conducting appropriate life cycle screening as part of an Alternatives Analysis and preparing two to five case studies implementing the appropriate methodology to identify factors relevant to the comparison
C. Identifying and documenting key steps needed to conduct the life cycle aspect of AA based on case study results.
D. Identifying factors that lead to differences in life cycle environmental impacts for the selected COC and its alternatives. Factors can include, but are not limited to: resource and energy consumption; environmental and human hazard; and end of life disposition.
E. The team may focus on one evaluation at a time, with the expectation of completing at least two LC screening studies of the chosen products and their alternatives

Project Significance
The results of the project will play a significant role in supporting the implementation of the Safer Consumer Products Regulations. There is limited practical experience conducting AAs, and these case studies and the likely findings of the Group Project will help DTSC develop guidance documents for industry. One of the challenges in conducting AAs is that there are data gaps that need to be resolved. The creative approaches that Group Project members may provide, with advice from experts like Dr. Sangwon Suh and Dr. Roland Geyer, will be extremely valuable for DTSC. The group will have the opportunity to work with DTSC to contribute to the Alternatives Analysis Guidelines as public policy. By collecting and using available data and evaluating life cycle impacts of alternative formulations or designs for products containing COCs, the Bren Group Project team aims to develop LC guidelines for AAs to test them on two or more of DTSC’s products of concern. This project provides an opportunity to strengthen a unique, progressive environmental policy aimed at reducing toxic substance use and systematically integrating life cycle thinking into manufacturing decisions. This work is important in regards to reducing unintended consequences of alternatives and the ability for manufacturers to conduct a practical study in a reasonable time.

Background Information
State regulations adopted this past October permitted DTSC to compile a list of ~1,200 candidate COC chemicals. DTSC is now tasked with identifying consumer products containing COC’s and to compile guidance for Alternative Analysis. The regulations apply to any COC-containing product sold, distributed, supplied or manufactured for sale in California (with a few exceptions). DTSC will issue a list of 5 high-priority

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3 In the event that DTSC has delays in the release of their target product list, the Bren team will work with DTSC and Bren faculty to determine an appropriate category for evaluation.
products of concern by March 28th 2014; the Bren team will analyze at least two products from this list with the intent of developing specific guidelines for considering life cycle impacts for companies considering alternatives to the COC-containing product. The AA guidelines have importance for any product manufacturer, not just those initially listed, because products of nearly any type may be selected in the future.

Stakeholders
1. Consumer product manufacturers, distributors and retailers
2. Intermediate formulators (such as fragrance or assembled components)
3. Raw material and chemical industry
4. Consumers and NGO’s
5. Other government agencies (i.e. air and water quality and health regulators)
6. Academic institutions, Universities, and Colleges

Possible Approaches and Available Data
The Bren Group Project team will collect available information, and assess methodologies to evaluate the life cycle impacts of chosen products and their alternatives. The Bren team will have an opportunity to work closely with UCSB faculty, policy makers, and corporate partners. Methodologies will consider the following information and data:
   (i) Life Cycle Assessment databases
   (ii) Existing LCA guidelines developed by US EPA, European Environmental Agency, European Commission, United Nations Environment Programme, as well as international standards such as ISO 14040 and the GHG Protocol
   (iii) Available manufacturer information and literature

Deliverables
1. Comprehensive guidelines for incorporating LC considerations into AA
2. Review of current literature on existing methodologies for analyzing alternatives in terms of life cycle impacts for two to five target products
3. Application of approaches and available data to evaluate life cycle impacts, including conducting a sensitivity analysis to determine what data is most crucial for conducting an LC screening as part of an Alternatives Analyses.

Commitment
Primary data sources are publicly available, and others (i.e. LCA databases) may need to be purchased. The project will be conducted in close collaboration with the DTSC to ensure proper oversight and adherence to project guidelines and regulatory requirements. The DTSC is prepared to provide expertise, funding, and general assistance to aid the Bren Group Project team in achieving its goals. DTSC has GaBi software with many extension databases available for use during the internship period.

Financial Needs and Internship Opportunity
DTSC will allocate up to $15,000 to support the project (e.g., for purchases of data sets and relevant information and for internship costs) once those costs are identified. DTSC is interested in hosting intern(s) for summer 2014 at DTSC headquarters in Sacramento.
January 24, 2014

Bren Group Project Review Committee
Bren School of Environmental Science & Management
Bren Hall, University of California,
Santa Barbara, CA 93106-5131


Dear Bren Group Project Review Committee:

The Department of Toxic Substances Control is the state agency responsible for implementing the Safer Consumer Products Program. DTSC plans to serve as a client to the proposed Bren School Environmental Science and Management Master's Thesis Group Project entitled "Safer Consumer Products Alternatives Analysis Development." This project will address expansion of the alternative product evaluation practice for hazardous chemicals in consumer products. The final deliverables will be part of DTSC’s Guidance for entities to conduct alternative analyses (AA).

The results of this project will become available as the Guidance is developed, and the project will directly influence the life cycle aspects of the guidance as well as provide highly valued case studies. Recognizing the project's importance, DTSC plans to provide assistance and contacts to facilitate the project. DTSC also agrees to provide support for a summer intern(s) at the Department headquarters in Sacramento. DTSC would like to see the findings of this project and the resulting tools for identifying potential life cycle implications of product alternatives shared as broadly as possible. This can contribute to more effective product development all around the world. Because the deliverables will be included in the Department guidance, we do not seek any form of nondisclosure agreements or place any restrictions on the publication of a project report, as long as there is sufficient oversight and findings are in agreement with the regulatory requirements for conducting AA.

We believe that this project fits in very well with the objectives of the Bren Master Group Project and the timing for the Departments guidance development cycle. DTSC is interested in helping to provide students with the important opportunity of filling crucial gaps in an emerging field, and of making substantial recommendations to an implementing agency. For further information or clarifications, please contact Bob Boughton, AA Guidance Development Team Leader, at bob.boughton@dtsc.ca.gov or 916-323-9586.

Thank you for your consideration!

Sincerely,

Bob Boughton
Sr. Hazardous Substances Engineer
Safer Consumer Products Program, DTSC