To: Alex Stone Date: 15 March 2012

From: Don Versteeg

Subject: Input on modules 1 & 2 of the **Assessing the Safety of Chemical Alternatives** program.

I have reviewed modules 1 and 2 entitled **Initial Evaluation** and **Identification of Alternatives** in the State of Washington's Chemical Alternatives program. My comments are guided by discussions with product development chemists and chemical engineers with decades of experience in identifying alternative chemicals and testing them for their applicability in consumer products.

Module 1 Initial Evaluation Module

It is difficult to evaluate this module is isolation. This module will be supported by other modules with definitions and additional information on the purpose and procedures. Currently, I am not familiar with the scope or intent of the guidance. Is this about chemicals in children's products, formulated products, or all products (cars, buildings, electronics, etc.)? What impacts are involved, impacts on human health and the environment? If so, is the lifecycle considered or only the final product? Is worker safety considered, how about energy use? Clearly, there are different issues and approaches appropriate depending on the nature of the products involved, the exposed population (assuming exposure is considered), and the impacts being considered? Without this information, it is difficult to provide comprehensive input. However, in an effort to be as constructive as possible, I would like to offer the following comments:

1. Insert the words "can be manufactured and" before "will function" in the first sentence of the Purpose. Some chemicals may be added to products to enable manufacturing. They have little or no functionality in the product, but must be included or the product would not exist.
2. The term function should be defined. Many products will function without some ingredients, but their performance will be compromised. Some would view a poorly performing product as not having the same function.
3. Insert "without impacting function" after "product" in the second sentence of the purpose.
4. Question 1 appears intended to eliminate mature products and products where a company has multiple products of the same product type. It does not seem to be focused on products containing chemicals of concern. Hence, this question should be eliminated, or at least rewritten to focus on products containing chemicals demonstrated to cause risk to users.
5. Question 1 on product type, what is the relevance of this question? How does "product type" relate to "function"? What would a 'yes' or 'no' answer to this question mean? How would this be built into an alternatives assessment? "Product type" needs to be defined (is a baseball the same product type as a softball?, is an inexpensive laundry detergent that does a poor job of removing stains the same product type as a concentrated detergent that does an excellent job of removing stains?).
6. Question 1a. 'Maturity' needs to be defined. I think of a baseball as a mature product, but why would we sunset this product?
7. Question 1b. Need to define the criteria to be used to determine if a product should go through innovation.

8. Question 2. The key is **risk** to consumers and the environment that may be exposed to the product or its ingredients. A better question is, "For the chemical of concern, is there a significant risk to individuals exposed product during consumer use or to the environment during use or disposal?"
9. Question 3. I am not sure why the history of how an ingredient got into a product is important. I would delete the first question here.
10. Question 3c. Rephrase to read: "Would removal of the chemical with the impurity or generating the by-product affect product performance, cost, consumer acceptance, or manufacturability?" This question suggests the focus of question 3 is on impurities and by-products. I did not get that from question 3. Should 3c be a question under 3b, if so re-label 3c as 3bi.
11. Question 3cii. Rewrite to ensure that costs, availability of supply, consumer acceptance, and manufacturability are included in the analysis.
12. Question 3dii. Rewrite to: "Could the product formula be adjusted to eliminate the chemical without impacting cost, consumer acceptance, or manufacturability?"

Module 2 Identification of Alternatives

As with module 1, it is difficult to comment on this module without seeing it in context, however, to be helpful, the following comments are provided:

1. This module asks two key questions, 1. does a functional equivalent exist and 2. do other manufacturers currently use an alternative or are there chemicals for sale that meet the functional requirement. One alternative that was not considered was a redesign of the product to reduce exposure and thereby reduce risk to an acceptable level. Additional questions (under both 1 and 2) which need to be asked include: is there a sufficient supply of the alternative chemical, has the alternative been fully vetted for impacts through its life cycle, does the alternative perform the same function with the same efficiency as the current material, is the alternative cost effective, compatible with existing manufacturing processes, and will it meet product requirement for stability, aesthetics, performance, cost, etc.
2. This module then offers a list of databases and websites to identify alternative chemicals. In my experience, product researchers seldom if ever use these databases or websites to find alternative chemicals. These approach may point to chemicals which are available in gram or kilogram quantities, but which are not available at the tonnages needed. Instead, product researchers typically go to chemical suppliers (e.g., chemical companies) to identify chemicals with appropriate functionality, cost, supply, manufacturability, safety information, etc. Different chemical suppliers specialize in different types of chemistries. These companies are familiar with the chemistries and those of their competitors and they understand how the material will be processed, manufactured, and used in the product. Thus, they can best identify chemicals that will meet a specific need.
3. In question 1a, define "similar or equivalent functional requirement".
4. In question 1d, define reasonable time. Note, registration of a new chemical under TSCA typically takes 5-7 years from the time of the material is identified as useful in product until EPA accepts the PMN. This time is used to collect appropriate data on safety, manufacture, and use and file a registration with EPA.

Thank you for the opportunity to provide input on these modules, I look forward to the full report and hope that this input is constructive.

Don Versteeg