Lin:

I found your latest e-mail a significant departure from your Great Lakes Green Chemistry Network Mission Statement:

"To create a partnership between academia, industry, government and NGOs to promote green chemistry practice..."

I believe the previous response to you from David Wawer illustrates that you are not contributing to the "partnership" objective of this Green Chemistry Standard initiative. I also believe your challenges to the workgroup leadership appointment process, ground rules of operation, and even our separation into two task groups are distracting and noncontributory.

If you read my Green Chemistry Standard White Paper posted to the GCI/NSF Green Chemistry portal on May 15, 2009, you will find that your statement, "None of the documents advanced for discussion at the Chemical characteristics workgroup makes even a token reference to the principles of green chemistry" no longer applies. The proposed objective in my White Paper is to "develop a green chemistry standard based upon the 12 Principles of Green Chemistry...." This document then proceeds to analyze the 12 Principles in detail and defines why chemical characteristics are critical to both green chemicals and green chemistry. In short, one cannot talk about green chemistry without defining metrics for green chemicals. Since my White Paper proposed a specific path "to operationalize the principles and experience of the science of green chemistry",...
chemistry,”
as you said we should, you and I can surely find common ground for moving
forward.

Developing a Green Chemistry Standard is a complex process that requires all
stakeholders to listen to perspectives that differ from their own paradigms. In
the initial kick-off meeting, it was clear that some defined green chemistry in
terms of chemical characteristics across the life cycle, while others defined it
more narrowly as the synthetic process -- thus the appropriate decision to form
our two Task Groups, each with their own diverse expertise and concerns. We
additionally heard opinions of hazard vs. risk. Surely, you recognize that "hazardous substances," "innocuous," "toxicity," as used in the 12 Principles,
can each be defined on the basis of "hazard" and/or "risk" -- some prefer one
approach, some the other. Can't we write a standard that allows either, or both?
Your contributions to this "partnership" effort would be much more constructive
if you hear the opinions, needs, and preferences of others, then broaden your
own perspective, so we can all get under the same "tent" of a Green Chemistry
Standard.

I will welcome constructive comments from you, and every other recipient of this
e-mail, regarding the specifics I proposed in my White Paper. Please, let's get
back to finding a path through this complex effort and dispense with insignificant side issues, even if we personally feel they are "serious concerns."

Respectfully,

Page 2
Dear Green Chemistry Working Group,

After giving great thought to the email below which I received yesterday, and carefully looking over the attached documents, and because I am unable to participate in the scheduled call next Tuesday due to a conflict, I feel it necessary to take this opportunity to once again reiterate serious concerns about the progress of this endeavor. The proposed agenda and documents for the upcoming "Chemical Characteristics Task Group" bring these issues into
sharp relief.

First, with all due respect to Mr. Paulson, whom I believe to working very hard in good faith on an issue he finds critical to his own work, I must nonetheless point out that I have significant concerns with his appointment as leader of the workgroup. From all I can gather regarding this appointment, it was done in an occult process which was not only not open to the membership of the larger workgroup, but also not to the members of the subgroup itself. (According to an email from Mindy Costello of 5/19/09, "the chairperson for any task group is selected by the Stakeholder group chairperson and NSF") Rather it seems to have occurred as a fait accompli, based on no criteria available to the larger group. In a process in which, we have been repeatedly assured, transparency in all matters is of the highest value, this total lack of transparency is quite striking.

In addition to the process, however (and again, let me reiterate that this is not meant as a personal criticism but an observation of what I see to fact), in the course of my now several phone conferences in which Mr. Paulson has been a participant, I have not had the impression that he has any particular expertise, experience, or substantive knowledge of the field, history, and principles of green chemistry. His primary focus throughout, as I believe he would agree, has been on accomplishing a standard by which he will be able to define "green chemicals" in accordance with the EPA regulations relevant his job with the U.S. Navy. This is understandable.

My problem, again, is that we are not engaged in a process designed to
establish an ANSI Green CHEMICALS Standard. I was brought into this process, as I suspect were many others at the table, because I led to believe that this would be a process in which we would be seeking to operationalize the principles and experience of the science of green chemistry, if possible, into an ANSI standard to facilitate wider use and application of the principles of green chemistry. This is just not the same thing as working on a standard to define the concept "green" as it relates to chemicals.

I must also say that I have never before been involved in a process focused on a specific area of science in which the objective was not to bring together the most knowledgable and experienced practitioners of that science to provide leadership and guidance. It is therefore extremely difficult to comprehend the rationale of designating an individual, his enthusiasm and knowledge in other areas notwithstanding, who appears to have so little familiarity with the principles and applications of green chemistry. It is not clear how this situation is able to facilitate advancing everyone's ability to incorporate the principles and experience of well over a decade of green chemistry as an established discipline into an ANSI Standard. None of the documents advanced for discussion at the Chemical characteristics workgroup makes even a token reference to the principles of green chemistry. It is particularly disturbing that even NSF does not find this problematic.

A significant part of this problem is that the Standards workgroup as a whole has still not come to consensus about what the foundation of this standard should be. And rather than addressing that issue in a forthright and direct manner, the most substantive issues before us are being relegated to "subgroups" where even smaller groups of people will be addressing fundamental issues that more properly belong to the group as a whole. In place of
substantive discussion in the 3-hour workgroup call, we receive completely superficial and meaningless reports from subgroups, and are treated like children in a classroom who have to raise their hands to be "called on."

Now we have a "boundaries" subgroup, a "chemical characteristics" subgroup, an "integration" subgroup, and calls for even more subgroups to subdivide off.

These endless phone conferences require huge time commitments and yet result in little of substance being accomplished, because there is no consensus on a baseline from which to begin.

Even if decisions are made, what relevance will they have if at a later time the basis on which they were determined is not recognized as consistent with the principles of green chemistry. How is it possible for the chemical characteristics subgroup to even address this question when the whole group has not yet even had a substantive discussion of risk versus hazard? One would assume that this would be the minimum basis for proceeding. No definitions of the toxicity of chemicals based on risk, or determinations of the "greenness" of chemicals based on risk are consistent with the principles of green chemistry which by definition assesses hazard and not risk. How can we be discussing "boundaries" when green chemistry is by definition "cradle to cradle"?

I would like to conclude by stating bluntly that I believe that if this process is going to succeed, it must immediately come to terms with deciding what it is about.

We must decide whether this process is an effort to craft a standard to somehow define the "greenness" of a chemical based on a risk assessment and risk management paradigm, in which case it is not green chemistry, and should
completely separate itself into a different process which clearly defines its goals and parameters as something entirely independent of a green chemistry standard.

If this is an effort to craft a standard based on green chemistry, the group must come to consensus that the basis of its work is to figure out how to craft guidance to those who wish to incorporate the principles of green chemistry into their production processes. We must come to consensus that any standard proposed

1. must be based on hazard rather than risk.
2. must address the entire life-cycle.
3. must set out the absolute goals that we are striving toward and then set benchmarks as progress toward those absolute goals.
4. must be based around continuous improvement rather than simple static goals in order to integrate the rapidly evolving changes in the field.

These are absolutes, the essence of green chemistry which require full consensus in order to move forward. Risk is not part of this equation, and those for whom this is not acceptable should work with ANSI to promulgate their own standard based on their own definitions of toxicity based on risk assessment, but they should not be part of this process. The field of developing metrics to assess hazard as the indicator of toxicity is in its early stages, but it does exist, it is evolving rapidly and several tools to facilitate this process already exist. These must be the starting point for any work addressing a green chemistry standard - one rooted deeply in the principles of green chemistry, and utilizing the experience of well over a decade of work in green chemistry as a recognized field of science with its own journals and experts.
Respectfully,

Lin Kaatz Chary, PhD, MPH