

Toxics Use Reduction Institute Science Advisory Board Meeting Minutes

March 10, 2023

Virtual Zoom Meeting

1:30 PM

Members Present: Robin Dodson (Chair), Heather Lynch, Lisa Cashins, Helen Poynton, Christy Foran, Denise Kmetzo, Wendy Heiger-Bernays, Rich Gurney

Members not present: Christine Rioux (Vice Chair), Alicia Timme-Laragy

Program staff present: Liz Harriman (TURI), Heather Tenney (TURI), Karen Thomas (TURI), Hayley Hudson (TURI), Gabriel Salierno (TURI), Nicole Moody (MassDEP), Sandra Baird (MassDEP)

Others present: Carol Holahan (Foley Hoag ACC), Christina Bramante (Nano-C), Raza Ali (ACC), Katherine Robertson (MCTA), Jerome Lang (Nano-C), Ben Gann (ACC), Ryan Bouldin (Bentley University), Tom Lada (Nano-C), Laura Spark (Clean Water Action)

Welcome & Introductions

The chair noted that this meeting is being conducted remotely, consistent with *An Act Relative to Extending Certain State of Emergency Accommodations* signed by Governor Baker on June 16th 2022. This allows the extension of the remote meetings under the Open Meeting Law until March 31, 2023. Board members introduced themselves, program staff were announced, and attendees were asked to put their name and affiliation in the chat.

Approve February Meeting Minutes

A motion was made to approve the February meeting minutes, and there was a second. A roll call vote was conducted, and the minutes were approved by the seven members with one abstention.

MA Flame Retardant Law (Introduction)

Karen gave a presentation summarizing background information on the new law - An Act To Protect Children, Families, And Firefighters From Harmful Flame Retardants. (See presentation slides for detail.)

- There are 11 flame retardants (FRs) identified in the law
- Cannot sell, manufacture for sale, offer for sale, distribute in commerce or import to MA above threshold in certain product categories
- Described differences between MA TURA and the MA flame retardants law
- 11 chemicals fit into 7 subclasses
- Presented each subclass of chemicals and their proposed analogues in detail
- Outlined responsibilities of SAB in the law - three questions for the SAB at this time
 - Is each proposed chemical analogue (identified by TURI/DEP) sufficiently similar to at least one chemical identified in the law such that the proposed analogue would be

reasonably anticipated to have similar concerns re: toxic hazard, persistence, bioaccumulation?

- When FR chemicals identified in the law are associated with more than one CAS number, should all CAS numbers be included?
 - Are isomers of the FRs identified in the law (when used as flame retardants themselves) chemical analogues per the definition?
- What information will the SAB need and what are members thoughts on how to move forward?

Discussion about the FR Work

A member asked if the bromodiphenylethers are mixtures commercially. They are all mixtures in that category. The reaction cannot be specific as to where and how many bromines are attached to the phenyl groups. It can only be tailored for the most favorable conditions for the desired outcome.

A member asked if the proposed analogues in the phosphate subclass are included in EPA's phosphate ester cluster. Staff will check into this before the next meeting. Since EPA's cluster is specific to chlorinated phosphates, the brominated ones would not appear there.

A member asked why PTFE (polytetrafluoroethylene) isn't on the list. Without researching it, an assumption was made that while PTFE likely has flame retardant properties, it is probably too expensive to compete with the brominated compounds. Also, it didn't appear in the analogue search because the structure of PTFE is very different than any of the 11 chemicals in the law.

A member asked, when thinking about CAS numbers versus mixtures – does the chemical need to be used for the flame retardant purpose? Is the ban specific to the purpose of use or holistically for those chemicals? Program staff will verify that while the law refers to “chemical flame retardants,” it doesn't state that their function in the product has to be flame retardance.

Members asked for legal definitions of isomers (including constitutional, positional, chain, structural) and analogues and suggested that the Board go subclass by subclass for the three questions, in reverse order. Essentially the isomer question is a subset of the analogue question. A member commented that the third question, isomers, shouldn't be a question because they are clearly analogues per the definition. For definitions of isomers, the suggestion was to go to IUPAC.

A member asked how it was determined if the proposed analogue is used as a flame retardant. Staff combed other state, federal reports, scholarly articles and PubChem “use and manufacturing” and “patents” sections.

A member asked about the phrase “reasonably anticipated” -they'd like more guidance on that. That phrase suggests that the toxicity data may not be known. So, it seems the Board is being asked to determine structural similarity without reviewing toxicity or bioaccumulation data.

The MassDEP liaison clarified that they are looking for guidance from the board about what is a reasonable interpretation of what is covered under the law, and how to break them up into groups that are similar enough to reasonably expect that they would act similarly to the named chemicals.

A member noted that the ban is specific to use as flame retardants, thresholds, and specific product categories. The SAB is advising DEP. DEP can consider the applicability of the SAB advice; the SAB doesn't need to consider applicability.

Visitor Questions/Comments

The Chair asked for visitor input. First comments from the 'chat' were read.

Christina Bramante suggested consulting the CAS registry for details and differences on the CAS numbers.

Carol Holahan asked for the legal interpretations to be shared.

The Board took a 10 minute break.

Threshold Determination Background (continued discussion)

The nano petition asked for lower thresholds – 100g - and the only way for lower threshold under TURA is with a higher hazard substance (HHS) designation. Most members were not on the Board when the last HHS designation occurred in 2016. During previous categorizations staff collected a standard set of information (LD₅₀, IARC, RfD, TLV, BCF, FP, LC₅₀); then the Board used expert judgement to determine more hazardous and less hazardous TURA chemicals (the non-regulatory SAB MHC and LHC lists). Amendments to TURA in 2006 allowed using these lists for Higher and Lower Hazard Substances. Generally, the MHCs that have been prioritized for HHS designation have been those with either a severe chronic effect (e.g., IARC 1) or a severely 'acutely toxic,' chemical (e.g., hydrogen fluoride). Crystalline silica is on the higher hazard list. This process can evolve since it has been many years since the board made a HHS determination.

The question for the Board is: Should any or all of the carbon nanotubes (CNTs) and carbon nanofibers (CNFs) be added to their MHC list and should they be designated HHS? Staff reviewed the document, "Nano-Threshold Determination Background." Multi-walled carbon nanotubes (MWCNTs) would fit into the previously-used criteria for HHS determination as they are IARC 1. If a substance is designated as a HHS, its reporting threshold would automatically be lowered to 1000 lb. Then further lowering is statutorily possible, but has not been previously done under TURA.

TURI and the TURA Advisory Committee have considered the following policy information: expected volume and frequency of use, existence of TUR options, known exposure scenarios, and the value of having companies focus on that chemical or category. Experience has shown that companies do focus on HHSs and tend to make progress.

Looking at the Toxics Release Inventory (TRI) rationale for setting very low thresholds for persistent, bioaccumulative and toxic chemicals (PBTs) and chemicals of special concern, EPA considered the following:

- Effects exist at low doses/concentrations

- Persistent and bioaccumulative, very persistent, very bioaccumulative
- Used in small quantities
- Balancing industry burden and feasibility w/ both public Right-to-Know and benefits of companies focusing on small quantities

Additional information from TRI is that the EPA made the PBT rule in 1999 considering things like: whether the chemicals are reasonably anticipated to cause serious or irreversible chronic human health effects at relatively low doses or ecotoxicity at relatively low concentrations, and thus are considered to have moderately high to high chronic toxicity or high ecotoxicity.

Another example is for dioxin where EPA considered whether dioxin poses unique problems because these chemicals are generally produced in extremely small amounts compared to other Section 313 chemicals.

A member asked if there is information about the likelihood of these materials being in the air vs being contained. This is relevant due to the pulmonary toxicity issue.

A member suggested that they did not view this as a toxicity issue, that it is more of a combination of mass and toxicity.

Another member asked about a threshold for persistence since the materials are persistent in the soil. A member wanted information about how asbestos was handled. Staff will look into this. A member noted that these materials will likely stay in the air because they are beyond respirable. They are so small that even when they agglomerate, they are smaller than asbestos. A member offered that we do not know how the animal study results translate to human health effects.

Visitor Questions/Comments

The Chair asked for visitor input.

Christina Bramante offered that the animal data in the inhalation studies often requires that the materials are manipulated so it can be respirable for the animals. It is not representative of what is used in the work environment. She reminded the Board that manufacturers are obligated to file pre-manufacture notices (PMN) and EPA makes a determination on that. There isn't supposed to be any exposure if the PMN conditions are met. She would like to have a better understanding of the criteria to make this designation. Any other guidance on that would be helpful.

Next Meeting

Heather will send out a 'when to meet' for the first couple of weeks in May and possibly some in April. Since we don't know if the meeting will be virtual or in person, fill out the poll as if it will be virtual.

Adjourn

Meeting Materials

TURI: Threshold Determination Document

TURI: Flame Retardant Introduction Powerpoint

Visitor Comments (inserted verbatim from zoom chat)

Gabriel Salierno 12:28 PM

Gabriel Salierno, Green Chemist at TURI

Heather Tenney to Waiting Room Participants 1:32 PM

if you are new to the SAB meetings please let us know your affiliation

Jerome Lang to Everyone 1:33 PM

Jerome Lang, Nano-C

Tom L to Everyone 1:34 PM

Tom Lada, Nano-C

Christina Bramante to Everyone 1:34 PM

Christina Bramante, Representing Nano-C

Ryan Bouldin (he/him) - Bentley University to Everyone 1:37 PM

Ryan Bouldin - Bentley University

Ben Gann, American Chemistry Council to Everyone 1:37 PM

Ben Gann at American Chemistry Council

Raza Ali to Everyone 1:37 PM

Raza Ali, American Chemistry Council

Carol Holahan to Everyone 1:40 PM

Carol Holahan, Foley Hoag LLP

Katherine Robertson to Everyone 1:52 PM

Will these slides be made available?

Heather Tenney to Everyone 1:52 PM

yes

Katherine Robertson to Everyone 1:57 PM

Katherine Robertson, MCTA

Rich Gurney (he, his) Simmons University to Everyone 2:23 PM

<https://www.daikinchemicals.com/solutions/technical-challenges/flame-retardant.html>

Heather Lynch to Everyone 2:28 PM

I have to jump off but can rejoin if we are still going at 3:30. thanks

Liz Harriman to Everyone 2:29 PM

WE do plan to, so hop back on!

Christina Bramante to Everyone 2:35 PM

For question 2 regarding CAS numbers, will the Board consult the Chemical Abstract Service Registry number documentation to understand the basis of the different CAS numbers issued for the same chemical?

Carol Holahan to Everyone 2:39 PM

Once you have consulted with your attorneys on the statutory interpretation, will you share that guidance with the group?

Christina Bramante to Everyone 2:50 PM

My pleasure

Carol Holahan to Everyone 2:50 PM

Thank you

Ryan Bouldin (he/him) - Bentley University to Everyone 2:51 PM

Thanks everyone

Helen Poynton (she/her) to Everyone 3:04 PM

sorry for being late, I locked myself out of my office during our short break

Christina Bramante to Everyone 3:31 PM

Yes, I have a question

Agreed Liz

Christina Bramante 3:42 PM

Thank you.