

NAS Backs Subclass Review For Flame Retardants, Highlighting PFAS Method

May 21, 2019

A recent National Academy of Sciences (NAS) report proposing a clustering approach of grouping flame retardant chemicals into subclasses for risk assessment is highlighting the emerging consensus that EPA and others are considering for addressing per- and polyfluoroalkyl substances (PFAS), another large group of ubiquitous chemicals that are also subject to high-profile public scrutiny.

NAS' [May 15 report](#), "A Class Approach to Hazard Assessment of Organohalogen Flame Retardants," recommends that the Consumer Product Safety Commission (CPSC) group organohalogen flame retardants used in some consumer products into a dozen subgroups to assess their risks.

The CPSC had asked NAS for the advice, after receiving a 2015 petition seeking bans on four groups of flame retardants, based on the consumer products where they are used.

The NAS committee praises the class-based approach for risk assessment generally, writing that "[o]ne of the biggest challenges for the risk-assessment community is how to move from the traditional chemical-by-chemical approach to analyses that evaluate multiple chemicals together. . . . Although it is challenging to evaluate chemical groups, the number of chemicals in use today demands a new approach to risk assessment, and the class approach is a scientifically viable option."

The report notes that there are three primary problems with the traditional approach of assessing chemicals one-by-one: "chemicals on which data are insufficient are typically treated as not hazardous, that untested chemicals are often substituted for hazardous chemicals, and that cumulative exposure and risk are often ignored."

The report also notes precedent for using a class-based approach for the flame-retardant chemicals, specifically pointing to phthalates and cholinesterase-inhibiting pesticides as examples.

The NAS report comes amid increasing calls from many lawmakers, environmental groups, state agencies and other stakeholders for EPA to assess PFAS -- a class of thousands of chemicals in widespread use -- in a class or subclasses, to address exactly the concerns the NAS report describes.

But their calls are facing strong pushback from industry groups and Republican lawmakers, who charge that some bills that seek to regulate PFAS as a class bypass EPA's statutory practices and will impose unnecessary burdens on manufacturers and others.

As Congress gears up to address PFAS, the question of whether to assess PFAS as a class is a major topic of debate.

For example, during a [May 15 hearing](#) on PFAS legislation before a key House panel, lawmakers debated a bill, H.R. 2600 that would amend TSCA to regulate PFAS as a class. Democrats sought to make the case for the bill by comparing it to TSCA's original provision that regulated PCBs as a class.

"Even when we first passed TSCA in 1976, Congress recognized the statute might not work for some classes of chemicals. "That's why PCBs were dealt with quickly and comprehensively, and as a class through a separate TSCA subsection," said Rep. Jan Schakowsky (D-IL).

But Rep. John Shimkus (R-IL), the panel's top Republican, pushed back, cautioning that lawmakers cannot back "the use of good science or public input" only when they know that will lead to endorsing policy solutions they favor -- something that was a major principle in amending TSCA in 2016.

Whether PFAS is assessed and regulated as a class or not "will be the central question" as lawmakers move forward with legislation, said Rep. Paul Tonko (D-NY), the panel's chairman.

Chemical Subclasses

While the NAS report calls generally for a class-based approach, it recommends in the case of the flame retardant chemicals breaking them into 14 subclasses. NAS' press release explains that the chemicals "cannot be treated as a single class for hazard assessment . . . but they can be divided into subclasses based on chemical structure, physical and chemical properties, and predicted biologic activity."

NAS notes that using a class approach to assess chemicals' toxicity is relatively new, explaining that there "is no consensus in the literature on exactly what constitutes a class approach, and there are few examples of the use of such an approach, although the list is growing. The committee concluded that a science-based class approach does not necessarily require one to evaluate a large chemical group as a single entity for hazard assessment. That is, an approach that divides a large group into smaller units (or subclasses) to conduct the hazard assessment is still a class approach for purposes of hazard or risk assessment."

As one example, the report points to a recent publication from researchers with EPA's research office and the National Toxicology Program, who are researching ways [to test PFAS in subclasses](#).

NAS notes that PFAS "are a large class of chemicals defined by structural features and chemical properties," and identifies the researchers' "challenge [as] to identify a subset of PFAS for testing with the goals of supporting read-across within structure-based subgroups and capturing

the diversity of the broader PFAS class. . . . The investigators finally selected a set of 75 members of the class that represented 34 subclasses. Those substances are undergoing testing with an array of new approach methodologies.”

Just as NAS backs an approach that examines flame retardant chemicals in a subclass, so too do many involved in the debate over PFAS. For example, in [a May 14 letter](#) to the House subcommittee, the American Chemistry Council (ACC) appeared to leave the door open to consideration of addressing PFAS in subclasses even as it strongly opposed review of the chemicals in a single class.

“Our industry supports examining alternatives to a one-size-fits-all class scheme for substances using a more deliberate approach that acknowledges the differences within the chemical family,” the group said.

ACC’s North American Flame Retardant Alliance (NAFRA) also appears to specifically support the clustering approach recommended in NAS’ recent report on flame retardants. “By recommending a subclass approach, [NAS’] findings are consistent with other chemical assessment agencies,” the group said in a statement.

Environmentalists generally agree though some say that emerging monitoring and other technologies could drive the debate on how to assess and regulate PFAS in the future.

The Environmental Working Group’s David Andrews urges the adoption of two classes for PFAS: one including the older, long-chain PFAS which were included in the 2010 phaseout agreement and a second class containing their short-chain replacement chemicals.

“There’s a recognition the single chemical approach is failing and we need a different approach,” Andrews tells *Inside EPA* in a May 20 interview. But whether the chemicals are assessed in two classes or more, he thinks will end up being a “messy” debate. “It may just be different stakeholders have a different . . . risk tolerance.”

Citing the pending federal research, Andrews suggests that may indicate how EPA might move forward on PFAS through the use of subclasses.

But, he says, methods to detect and treat PFAS in drinking water and sources may reinforce the idea of PFAS as a class. Because all PFAS contain fluorine-carbon bonds, a universal method of detecting aggregate organic fluorine in water could be used to detect all PFAS, Andrews says, adding that methods to treat water containing multiple PFAS is also in the works. -- *Maria Hegstad* (mhegstad@iwnews.com)

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