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**Memorandum**

To: Board of Pesticides Control

From: Pamela J Bryer, Ph.D. | Pesticides Toxicologist

Subject: New developments and a correction on PFAS definitions in relations to LD 264

Date: November 19, 2021

**PFAS definition for LD 264 implementation**

In order to implement the affidavits required by LD 264 a definition of PFAS needs to be established.

Discussions led by staff covering the classification of PFAS for the implementation of LD 264 previously focused on classifying PFAS by risk. All chemical compounds have inherent toxicity, thus, they are regulated based on the potential for harm by carefully regulating the exposure in a manner dependent on their toxicity. Pesticide active ingredients and adjuvants intended for use on foods undergo a much higher level of risk categorization than most industrial chemicals. PFAS compounds have a higher degree of unknown risk because they were not required to undergo the same level of risk assessment prior to use. A number of PFAS compounds are now linked to a variety of human health issues. The public's discovery of the ubiquity of PFAS in most all types of consumer goods has led to a push to eliminate use of all PFAS as soon as possible. Regulating PFAS together as one class has become a go-to approach to dealing with the uncertainty surrounding all the different PFAS chemistries.

The State of Maine recently adopted LD 1503, *An Act To Stop Perfluoroalkyl and Polyfluoroalkyl Substances Pollution*. This law requires the Maine Department of Environmental Protection (DEP) to start collecting information on PFAS entering the state and then later prohibit PFAS. DEP will have discretion to determine if individual PFAS can still be used within the state. Within LD 1503 exists the following definition of PFAS:

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F. "Perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" means substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

BPC staff met with DEP in October to discuss LD 1503. In the course of the discussion DEP indicated that they typically regulate hazardous chemicals based on their risk potential, for example in 38 MRSA 16-D *Toxic Chemicals in Children's Products*, but that because of the language of LD 1503 that was not an option for PFAS. PFAS in Maine will be regulated based whether or not they include "at least one fully fluorinated carbon atom".

Follow up staff discussions concluded, adopting the definition set in LD 1503 would be the prudent approach as it allows for harmonization across the state's requirements. Pesticide registrants will be required to comply with LD 1503 in addition to LD 264. One definition across all departments will aid compliance through increased clarity and communication.

Staff encourage the board to consider this change as part of rulemaking under LD 264.

### **Correction from a previous memo's PFAS definition lists**

In an August 19<sup>th</sup> memo to the board, a PFAS definition list containing 190 pesticide active ingredients and inert ingredients was attributed to the Office of Pesticide Pollution and Toxics (OPPT) and Office of Pesticide Programs (OPP) as being produced by their "working definition". OPP has stated that there are approximately three pesticide products that fit with their "working definition" of PFAS. A careful review of their website shows that OPP has a definition that is actually much closer to "two fully fluorinated carbons" (although that is a simplification of their definition). The OPP definition essentially requires a two-carbon chain to meet the definition of PFAS. The list of 190 products previously reported was collected from an EPA website not related to OPP and that list has since been removed from the CompTox website. When asked, EPA responded that those lists were test runs for an upcoming list. Within the next month or so the CompTox Dashboard plans to release a more comprehensive list matching the -CF<sub>2</sub>- and -CF<sub>3</sub> structures to the full PFAS Master List.

This clarification note underscores the confusion created by this rapidly changing topic. Confusion on this topic should lessen once an understanding of what defines a PFAS has been established and accepted.

A currently widely cited definition of PFAS has recently been published by Organization for Economic Cooperation and Development (OECD):

PFASs are defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (-CF<sub>3</sub>) or a perfluorinated methylene group (-CF<sub>2</sub>-) is a PFAS.

This OECD definition is similar to the State of Maine's newly adopted definition; however, OECD's definition is more descriptive with less ambiguity in the potential included chemical structures. OECD comments that this new definition which increases the number of PFAS structures up from Buck et al. 2011 (the primary scientific reference used in PFAS definition discussions) is, "not connected to decisions on how PFASs should be grouped in regulatory and voluntary actions". They further state,

"The term "PFASs" is a broad, general, non-specific term, which does not inform whether a compound is harmful or not, but only communicates that the compounds under this term share the same trait for having a fully fluorinated methyl or methylene carbon moiety."

Once the ground has been established for what qualifies as a PFAS, resources can be dedicated to determining the risk profiles of the different chemicals.

## References:

Buck et al. Buck RC, Franklin J, Berger U, Conder JM, Cousins IT, De Voogt P, et al. 2011. Perfluoroalkyl and polyfluoroalkyl substances in the environment: terminology, classification, and origins. *Integrated Environmental Assessment and Management* 7(4), 513–541, <https://doi.org/10.1002/ieam.258>

Maine Department of Environmental Protection webpages:

Chemicals of Concern. <https://www.maine.gov/dep/safechem/childrens-products/concern/index.html>

Priority Chemicals. <https://www.maine.gov/dep/safechem/childrens-products/priority/index.html>

PFAS. <https://www.maine.gov/dep/spills/topics/pfas/>

OECD (2021), *Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances: Recommendations and Practical Guidance*, OECD Series on Risk Management, No. 61, OECD Publishing, Paris.