

Intentionally Added PFAS in Illinois Firefighting Foam (2023)



Submitted by Office of the Illinois State Fire Marshal
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Purpose

Under the PFAS Reduction Act (415 ILCS 170), established by Public Act 102-0290, the Office of the State Fire Marshal (OSFM) is tasked with surveying the Illinois fire service to determine the prevalence and use of Class B firefighting foam which contains intentionally added PFAS.

Background

PFAS, the short term for perfluoroalkyl and polyfluoroalkyl substances, are a group of manmade chemicals that have been widely used in industrial and consumer products since the 1940s. Among many other sources, PFAS can be found in some Class B firefighting foams. PFAS can accumulate in the environment and in the body, potentially causing adverse health impacts.

Older Class B foam formulations typically contain long-chain PFAS (e.g. PFOS or PFOA) as ingredients or contain precursors that degrade into long-chain PFAS in the environment. Such foams, sometimes called legacy foams, are considered to contain “intentionally added PFAS”.

Under the U.S. Environmental Protection Agency’s (USEPA’s) PFOA Stewardship Program, all U.S. foam manufacturers voluntarily reformulated their foams by 2016. These modern foam formulations contain short-chain PFAS which are thought to be less bioaccumulative and less toxic. Some manufacturers have also formulated fluorine-free firefighting foams.

Method

The Office of the State Fire Marshal requested participation by all Illinois fire departments in this survey. For determination of discharge or disposal occurrences in the “prior 12 months”, the 12-month period was October 1, 2022 to September 30, 2023. This is consistent with the last survey, for which the 12-month period was October 1, 2021 to September 30, 2022. OSFM intends to continue using the October through September 12-month period for future surveys.

To ensure consistency in reporting of foam content, the Office of the State Fire Marshal requested fire departments report information about the foam in their possession and worked

with foam manufacturers to identify those foams likely containing intentionally added PFAS, containing non-intentional PFAS (modern, short-chain foams), or containing no PFAS.

As part of the survey, the Office of the State Fire Marshal asked fire departments whether they had responded to the previous (2022) survey and whether they had additional foam to report. This allowed OSFM to build off results of the previous surveys and avoid unnecessary duplication of effort by fire departments or the agency. OSFM was also able to ask whether foam disposed of by fire departments had been reported on a previous survey.

The Office of the State Fire Marshal also requested information from the Illinois Emergency Management Agency on reported discharges or releases of Class B foam containing intentionally added PFAS and has incorporated those occurring during the same October 1, 2022 through September 30, 2023 12-month period into this report.

Results

In 2023, the Office of the State Fire Marshal received survey responses from 177 fire departments, 84 of which had not participated in last year's (2022) survey.

Throughout review of provided responses and data, the Office of the State Fire Marshal identified and reconciled duplicate responses and other apparent inconsistencies. The results of the survey are below.

Amount of Class B Firefighting Foam

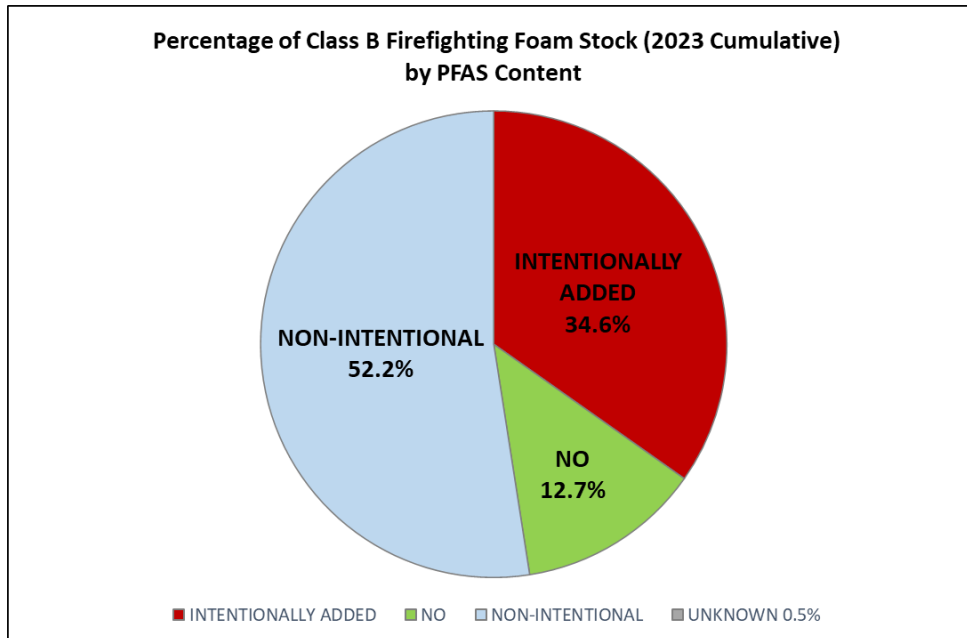
Illinois fire departments reported approximately 85,800 gallons of Class B firefighting foam in stock as of September 30, 2023. Though a significant portion of the available Class B firefighting foam stock likely contains intentionally added PFAS, a larger portion does not. Approximately 35% (29,700 gallons) of Class B firefighting foam reported likely contained intentionally added PFAS. By contrast, approximately 64% (55,700 gallons) of Class B firefighting foam stock reported did not contain intentionally added PFAS. The PFAS content of less than 1% (405 gallons) of Class B firefighting foam reported could not be identified.

See *Table 1. Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2023 Cumulative)* and *Figure 1. Percentage of Class B Firefighting Foam Stock of Illinois Fire Departments (2023 Cumulative) by PFAS Content* on the following page.

Table 1. Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2023 Cumulative)

Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2023 Cumulative)					
Contains PFAS?	Gallons (2022 Cumulative)	Gallons (2023 Reported)	Gallons Disposed of Previously Reported Foam	Total (2023 Cumulative)	Percentage
INTENTIONALLY ADDED	27,343	3,034	691	29,686	34.6%
NON-INTENTIONAL	42,297	2,498	0	44,795	52.2%
NO	9,700	1,225	0	10,925	12.7%
UNKNOWN	350	55	0	405	0.5%
Total	79,690	6,812	691	85,811	100%

Figure 1. Percentage of Class B Firefighting Foam Stock of Illinois Fire Departments (2023 Cumulative) by PFAS Content



Discharge of Class B Foam

Illinois fire departments reported approximately 5,000 gallons of Class B firefighting foam likely containing intentionally added PFAS was discharged over the prior 12 months. It can be difficult to determine PFAS content of discharged foam, as foam product is loaded into emergency response vehicles prior to the time it is needed and records may not exist. All reported foam discharged in the prior 12-month period was presumed to contain intentionally added PFAS.

Reported discharges were approximately 2.7 times higher for the 2023 12-month period than for the 2022 12-month period. It is likely that increased reporting of discharge, rather than increased use, of Class B firefighting foam containing intentionally added PFAS has driven this increase. The Office of the State Fire Marshal attributes this to the reporting requirement for discharge of Class B firefighting foam containing intentionally added PFAS enacted under the PFAS Reduction Act (415 ILCS 170) which became effective January 1, 2022; this is the first survey period during which the reporting requirement was in place during the entire surveyed period and the second survey period during which the reporting requirement was in place. Information on discharges was mainly sourced from data provided by the Illinois Emergency Management Agency (IEMA), the recipient of required discharge reporting, rather than the survey.

Table 2. Reported Discharges of Class B Firefighting Foam of Illinois Fire Departments (2023 Cumulative) Presumed to Contain Intentionally Added PFAS

Reported Discharges of Class B Firefighting Foam of Illinois Fire Departments (2023 Cumulative) Presumed to Contain Intentionally Added PFAS		
Gallons (2022 Cumulative)	Gallons (2023 Reported)	Total (2023 Cumulative)
2,261	5,003	7,264

Disposal of Class B Foam

Fire departments reported disposal of approximately 1,800 gallons of Class B firefighting foam likely containing intentionally added PFAS. Disposal was conducted mainly by special waste disposal companies. Added to last year’s (2022) cumulative disposed gallons, the fire service has disposed of over 2,800 gallons of Class B firefighting foam likely containing intentionally added PFAS in three years.

Table 3. Reported Disposals of Class B Firefighting Foam Containing Intentionally Added PFAS by Illinois Fire Departments (2023 Cumulative)

Reported Disposals of Class B Firefighting Foam Containing Intentionally Added PFAS by Illinois Fire Departments (2023 Cumulative)		
Gallons (2022 Cumulative)	Gallons (2022)	Total (2023 Cumulative)
1,055	1,761	2,816

Conclusion

More than one third of Illinois' reported Class B firefighting foam in stock likely contains intentionally added PFAS; by contrast, approximately two thirds of reported Class B firefighting foam does not contain intentionally added PFAS. Reported discharges in 2023 were higher than reported discharges in 2022, likely attributable to required reporting. Reported disposals in 2023 were equivalent to a small portion of available Class B firefighting foam stock which likely contains intentionally added PFAS.

The Office of the State Fire Marshal is tasked with surveying the fire service annually on this subject matter for the next three years. Future surveys may offer additional insights.