

Intentionally Added PFAS in Illinois Firefighting Foam (2022)



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, 2021 to September 30, 2022. This represents a small divergence from the 2021 survey, as it shifts the 12-month period to October through September, rather than November through October. 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.

This year, the Office of the State Fire Marshal asked fire departments whether they had responded to the previous (2021) survey and whether they had additional foam to report. This allowed OSFM to build off results of the previous survey and avoid unnecessary duplication of effort by fire departments or the agency.

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, 2021 through September 30, 2022 12-month period into this report.

Results

In 2022, the Office of the State Fire Marshal received survey responses from 128 fire departments, 51 of which had not participated in last year's (2021) 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

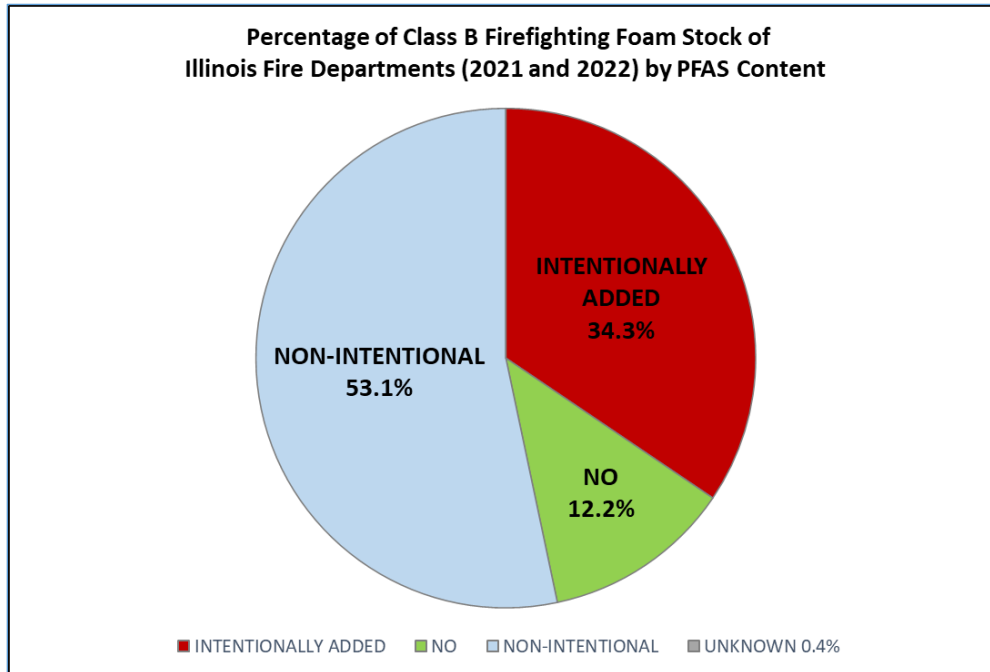
Illinois fire departments reported approximately 79,700 gallons of Class B firefighting foam in stock as of September 30, 2022. Though a significant portion of the available Class B firefighting foam stock likely contains intentionally added PFAS, a larger portion does not. Approximately 34% (27,300 gallons) of Class B firefighting foam reported likely contained intentionally added PFAS. By contrast, approximately 65% (52,000 gallons) of Class B firefighting foam stock reported did not contain intentionally added PFAS. The PFAS content of less than 1% (350 gallons) of Class B firefighting foam reported could not be identified.

See *Table 1. Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2021 and 2022)* and *Figure 1. Percentage of Class B Firefighting Foam Stock of Illinois Fire Departments (2021 and 2022) by PFAS Content* on the following page.

Table 1. Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2021 and 2022)

Reported Class B Firefighting Foam Stock of Illinois Fire Departments (2021 and 2022)				
Contains PFAS?	Gallons (2021)	Gallons (2022)	Total Reported	Percentage
INTENTIONALLY ADDED	18,196	9,147	27,343	34.3%
NON-INTENTIONAL	20,427	21,870	42,297	53.1%
NO	9,385	315	9,700	12.2%
UNKNOWN	350	0	350	0.4%
Total	48,358	31,332	79,690	100%

Figure 1. Percentage of Class B Firefighting Foam Stock of Illinois Fire Departments (2021 and 2022) by PFAS Content



Discharge of Class B Foam

Illinois fire departments reported approximately 1,850 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 3 times higher for the 2022 12-month period than for the 2021 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 part of the surveyed period. 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 as received responses to the survey were duplicates of the required reporting to IEMA.

Table 2. Reported Discharges of Class B Firefighting Foam of Illinois Fire Departments (2021 and 2022)

Reported Discharges of Class B Firefighting Foam of Illinois Fire Departments (2021 and 2022)			
Contains PFAS?	Gallons (2021)	Gallons (2022)	Total Reported
INTENTIONALLY ADDED	16	1,850	1,866
UNKNOWN	395	0	395
Total	411	1,850	2,261

Disposal of Class B Foam

Fire departments reported disposal of approximately 305 gallons of Class B firefighting foam likely containing intentionally added PFAS. Disposal was conducted mainly by special waste disposal companies or collection by another fire department for disposal through a special waste disposal company. Added to last year’s (2021) disposed gallons, the fire service has disposed of over 1,000 gallons of Class B firefighting foam likely containing intentionally added PFAS in two years.

Table 3. Reported Disposals of Class B Firefighting Foam Containing Intentionally Added PFAS by Illinois Fire Departments (2021 and 2022)

Reported Disposals of Class B Firefighting Foam Containing Intentionally Added PFAS by Illinois Fire Departments (2021 and 2022)		
Gallons (2021)	Gallons (2022)	Total Reported
750	305	1,055

Conclusion

More than one third of Illinois' reported Class B firefighting foam in stock likely contains intentionally added PFAS; by contrast, nearly two thirds of reported Class B firefighting foam does not contain intentionally added PFAS. Reported discharges in 2022 were higher than reported discharges in 2021, likely attributable to newly required reporting. Reported disposals in 2022 were equivalent to a negligible 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 four years. Future surveys may offer additional insights.