

Proposal to amend the Fire Fighting Chemicals Group Standard 2017

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Environmental
Protection Authority
Te Mana Rauhi Taiao

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We seek public input

This document has been prepared by the Environmental Protection Authority (EPA) to inform proposed amendments to the Fire Fighting Chemicals Group Standard 2017. The proposed amendments are being treated as an application under the Hazardous Substances and New Organisms Act. The proposal is being publicly notified to enable the public to comment and to put all relevant information before decision makers. We welcome your feedback.

We would like to hear what you think about the proposals outlined. To make this easier, you can make a submission online or you can download a submissions form and email it to us. You can find the submission form in the *Public Consultations: Open for submission* area of the EPA website. www.epa.govt.nz

The submission form includes the questions asked throughout the consultation document. Your views are welcome on any of the questions you are interested in. There is also an opportunity for general comments. There are a lot of questions, so please focus on those of interest to you, and don't feel you should answer them all. You also need to tell us why you're making this submission and if you want to speak at a hearing. You can also tell us what decision you think we should make.

For more information on how to make a submission, see Public consultations: *How to make a submission* on our website.

Closing date for submissions – Monday 2 December 2019

Please send your submissions to us no later than 5pm Monday 2 December 2019

How we will consider your submissions

We will review and analyse your submissions on the proposed amendments and provide this to a decision making committee who will decide whether the suggested amendments will proceed and what the final form of any amendments will be. The analysis of submissions will be available to all submitters and placed on our website at www.epa.govt.nz. We may also post submissions on our website.

Confidentiality statement

The EPA will deal with any personal information you supply in your submission in accordance with the Privacy Act 1993. We will use your contact details for the purposes of processing the application that it relates to (or in exceptional situations for other reasons permitted under the Privacy Act 1993). Where your submission is made publicly available, your contact details will be removed only if you have indicated this as your preference in the submission form. We may also use your contact details for the purpose of requesting your participation in customer surveys.

The EPA is likely to post your submission on its website at www.epa.govt.nz. We also may make your submission available in response to a request under the Official Information Act 1982. If you would

like more information about how we treat confidential information, see [Supplying confidential information to the EPA: your rights and our obligations](#) on our website.

Summary of proposed changes

The Environmental Protection Authority (“the EPA”) has been working to ensure that the law covering firefighting chemicals meet the requirements of the Hazardous Substances and New Organisms Act 1996 (“the HSNO Act”). Part of this work involves amending the Fire Fighting Chemicals Group Standard 2017 (“the Group Standard”) to better manage the risks to public health and the environment from firefighting foams containing PFAS (perfluoroalkyl and polyfluoroalkyl substances).

The following changes are proposed to the Group Standard:

- Prohibit the use of firefighting foam products that contain PFAS compounds for training purposes from the date the revised Group Standard is enacted.
- Prohibit the use of firefighting foam products that contain PFAS compounds for testing unless all releases of foam can be fully contained on site.
- Allow the use of firefighting foam products that contain PFAS compounds that are already installed in systems and where the use cannot be fully contained (i.e. fire trucks) for a period of two years.
- Allow the firefighting foam products that contain PFAS compounds to be used where they are already installed in fixed systems and where their use can be fully contained on site and cannot be released into the environment for a period of five years.
- Require thorough cleaning of all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.
- Require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.
- Suppliers of any firefighting foam product must ensure that the producer's certification of its fluorine content (or absence of) is clearly displayed on a label or document provided with the product.
- All foam wastes, including fluorine-free foam, must be contained where possible (there are exceptions for essential uses and emergency incidents provided that all reasonable and practicable measures are taken to minimise environmental harm).
- Require all importers and/or manufacturers to notify the EPA of the composition of any firefighting foam product upon their first import/manufacture.
- Two types of PFAS, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were excluded from the scope of the Group Standard. This specific exclusion is no longer necessary because they are listed as persistent organic pollutants (POPs) under schedule 2A of the HSNO Act (or have been shown to have met the criteria to be listed as a POP). However, firefighting foam products containing PFOA-related compounds will remain within the scope of the group standard for the duration of the transitional period specified.

Introduction

In 2018, the EPA carried out an investigation into the importation, manufacture, use and disposal of legacy firefighting foams containing PFOS and PFOA at airports, ports, refineries, bulk fuel storage sites, petrochemical sites and on New Zealand-registered ships. Following the investigation, the EPA has been reviewing the law covering firefighting chemicals to ensure they meet the requirements of the HSNO Act and manage the risks to public health and the environment posed by these chemicals. Part of this work involves reviewing and amending the Group Standard.

This consultation document provides an outline of the historical use of PFAS firefighting foams, and describes New Zealand's international commitments to phase out compounds containing PFAS, which have been found to be persistent organic pollutants. Proposals to phase out these chemicals and replace them with less toxic substances form the main part of this document. We invite your comments on these proposals, and have provided questions to guide your responses.

Background

Per-and Poly-fluoroalkyl substances (PFAS)

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a large group of chemical compounds that have been used since the 1940s in a wide variety of applications, including firefighting foams. PFAS include PFOS (perfluorooctanesulfonic acid), PFOA (perfluorooctanoic acid) and PFHxS (perfluorohexanesulfonic acid).

From the 1960s to the 1990s, PFOS was the key ingredient in “film-forming” foams, intended to extinguish Class B fires¹, manufactured by 3M. Class B foams are used at airports, bulk fuel terminals and refineries, and military installations. These products also contained PFOA as a minor constituent.

PFAS – Per-and Poly-fluoroalkyl substances

Common PFAS	Present in...
PFOS (perfluorooctanesulfonic acid)	‘film-forming’ Class B firefighting foams produced by the 3M company using the ECF process
PFOA (perfluorooctanoic acid)	the 3M foams, sometimes present in the C8 legacy foams, produced by the telomerisation process, as a contaminant, and only trace levels if any in the C6 foams
PFHxS (perfluorohexanesulfonic acid)	the legacy 3M PFOS foams

In 2002, the 3M Company voluntarily phased out production of PFOS. Other manufacturers, using a different manufacturing method (telomerisation), produced firefighting foams containing derivatives of PFOA. These products could also contain PFOA itself as a trace impurity, but do not contain PFOS.

PFOS and PFOA are classified as Persistent Organic Pollutants (POPs) under the Stockholm Convention. POPs are stable compounds that do not readily break down through chemical or biological processes. They persist for a long time, both in the environment and the human body and bioaccumulate up food chains. PFAS enter the body through ingestion, not through skin contact. This means that you need to eat or drink food or liquids containing PFAS for them to enter your body. Whether PFAS causes health issues in humans as a result of current environmental exposures is unclear at present. However, evidence from animal studies shows that there is potential for adverse health impacts on humans.

¹ Class B Fires are fueled by flammable or combustible liquids, which include oil, gasoline, and other similar materials. Smothering effects, such as those created by film-forming foams, deplete the oxygen supply to extinguish Class B fires.

PFOS and PFOA were excluded from the scope of the Fire Fighting Chemicals Group Standard when the standard was originally published in 2006. Excluding PFOS and PFOA from the group standard took away this approval pathway, which meant that PFOS- and PFOA-containing foams could not be imported into New Zealand, or be manufactured here. However, other approval pathways remained available. The exclusion of PFOA did not extend to the legacy fluorotelomer products containing derivatives of PFOA. Class B firefighting foams fall into four broad categories

Class B foam products

Legacy PFOS	Legacy fluorotelomer	'Modern' fluorotelomer	Fluorine-free foams
<ul style="list-style-type: none"> Aqueous film-forming foam Manufactured from 1960's to 2002 Contain: <ul style="list-style-type: none"> perfluorooctanesulfonic acid (PFOS) – classified as a POP perfluorooctanoic acid (PFOA) – classified as a POP in May 2019 perfluorohexanesulfonic acid (PFHxS) – expected to be classified as a POP in 2021 	<ul style="list-style-type: none"> Aqueous film-forming foam Manufactured from 1970's to 2016 Contain some long-chain PFAS (C8²) Can contain PFOA-related compounds (C8) recently added as a POP in the Stockholm Convention 	<ul style="list-style-type: none"> Aqueous film-forming foam Currently in manufacture Contain almost exclusively short-chain PFAS (C6) Not listed as a POP in the Stockholm Convention. Conference of Parties of Stockholm Convention in May 2019 recommended against replacing C8 foam products with C6 foam products. 	<ul style="list-style-type: none"> Referred to as F3. Do not form an aqueous film-forming foam Free of persistent fluorosurfactants (PFAS) Some F3 products available that are considered viable alternatives to fluorinated foams. Most foam manufacturers now produce Class B F3, and performance specifications continue to improve.

Stockholm Convention

In May 2019, the Conference of the Parties (COP) decided that PFOA and its related compounds are to be listed under the Stockholm Convention as a persistent organic pollutant. The COP also decided on a time-limited exemption for PFOA and related compounds in firefighting foams that will allow for a staged phase-out of these products. The phase-out process:

- applies only to foams already installed in systems, both mobile and fixed (any foam not installed, i.e. in drums in storage, would not be covered by the exemption).
- prohibits any use for training purposes.
- prohibits any use for testing purposes unless all releases are contained
- dispersive use (e.g. fire trucks) that cannot be fully contained allowed only until the end of 2022.

² The "C" in "C8" and "C6" refers to the distribution of perfluorinated carbon chain lengths with a majority being 8 carbons or 6 carbons respectively.

- allows fully contained use (e.g. bunded fuel storage tanks) until the end of 2025.

As a signatory to the Stockholm Convention, New Zealand will need to:

- incorporate the listing of PFOA and its related compounds as persistent organic pollutants in the HSNO Act by the time the Convention listing comes into effect, which is likely to be in late 2020;
- phase out all C8 foams containing PFOA-related compounds, to the timeline given above..

The COP also recommended that all signatories use alternatives to PFOA where alternatives are available, feasible and efficient. When considering alternatives, the COP advised signatories to be aware that fluorine-based firefighting foams could have negative environmental, human health and socioeconomic impacts.

Regulation of firefighting foams

Fire Fighting Chemicals Group Standard 2017

Firefighting foams are regulated under the Fire Fighting Chemicals Group Standard 2017 (“the Group Standard”). Importing and manufacturing firefighting foams containing PFOS or PFOA were prohibited in New Zealand in 2006 under the Group Standard.³ These prohibitions did not extend to PFOA-related compounds.

The EPA reissued the 2006 Group Standard in 2017, to take into account the workplace health and safety reforms introduced by the Health and Safety at Work Act 2015. The 2017 Group Standard maintained the restrictions on firefighting chemicals and the prohibition of PFOS and PFOA.

The Group Standard is being reviewed to ensure that it meets the requirements of the HSNO Act. In particular, we want to make sure that there is clarity and certainty about which firefighting foams are legal for use in New Zealand. This review provides a sound policy basis for the exclusion or restriction of particular firefighting foams from the group standard, and ensures that such exclusion or restriction takes account of the expanding scientific knowledge about PFAS substances and recent developments internationally in the regulation of firefighting foams.

In November 2018, the EPA hosted a workshop on firefighting foams with stakeholders. It included guest speakers from Australia and the UK, and there was a facilitated discussion on issues facing stakeholders regarding the use and disposal of firefighting foams. The workshop also covered how best to regulate the future restriction, or phase out, of foams containing PFAS compounds.

Requirements for submissions

Under section 54 of the HSNO Act, any submission on an amendment to a group standard must state the reason for making the submission and whether the submitter wishes to be heard in a hearing. Submissions may also state any decision sought.

Consultation questions on amendment to a group standard

1. What is the reason for making the submission?
2. Do you wish to speak in a hearing?
3. What is your preferred outcome of this consultation?

³ As noted above, excluding PFOS and PFOA from the group standard took away this approval pathway, which meant that PFOS-containing foams could no longer be imported into New Zealand, or be manufactured here.

Proposed amendments to the Group Standard

Discussion

The proposed amendments to the Group Standard are intended to decrease the environmental and public health risks due to firefighting foams. The proposed amendments will remove persistent firefighting foams that may cause damage to public health and the environment, and will place some additional rules around firefighting foams in general.

Noting that legacy PFOS aqueous film forming foams (AFFF) are already excluded from the scope of the Group Standard, the proposed amendments will phase out:

- Legacy fluorotelomer C8 AFFF – this includes products containing PFOA-related compounds that have just been listed as a POP in the Stockholm Convention.
- ‘Modern’ fluorotelomer C6 AFFF – these are not listed as a POP in the Stockholm Convention, however, they were recommended not to be used as alternatives (to C8 foams) by the Conference of the Parties for the Stockholm Convention.

It is considered that these types of foams can be phased out as there are fluorine-free alternatives to PFAS firefighting foams now available that are already being used worldwide. These are generally recognised as being suitable for all uses.

Consultation question about fluorine-free foams

4. Do you consider there are any applications for which fluorine-free foams are not suitable or do not have relevant approvals?

The proposed amendments will also require containment of all foam wastes, including fluorine-free foam, where possible. There is an exception for essential uses and emergency incidents provided that all reasonably practicable measures are taken to minimise environmental harm. There are also specific proposals for the disposal of PFAS foams and related wastes.

Proposed phase out of PFAS firefighting foam

The proposed amendments to the Group Standard to phase out PFAS-containing firefighting foams are shown in the draft revised Group Standard which is included in the Appendix. The relevant clause numbers in the draft Group Standard are listed against each proposal below. In summary, the effect of the amendments is to:

1. Prohibit the use of firefighting foam products that contain PFAS compounds for training purposes from the commencement date of the revised Group Standard – Schedule 2, clause 2.
2. Prohibit the use of firefighting foam products that contain PFAS compounds for testing purposes from the date the revised Group Standard is enacted, unless all releases of foam can be fully contained on site such that there are no releases to the environment, and all foam, run-off, and contaminated wastewater are disposed of in accordance with proposal 6 below – Schedule 2, clause 5.
3. Allow the use of firefighting foam products that contain PFAS compounds that are already installed in systems where their use cannot be fully contained (i.e. fire trucks) for a period of two

years from the date the revised Group Standard is enacted, and allow the refilling ('topping up') of these systems, other than small fire extinguishers, with such foams for the same period – Schedule 2, clause 4.

This clause is designed to address 'dispersive' systems, such as fire trucks and 'small fire extinguishers' (ie, those with a capacity of less than 90 litres), and other systems where there is no mechanism to trap and contain all the firefighting foam once used.

4. Allow the use of firefighting foam products that contain PFAS compounds that are already installed in fixed systems where the use can be fully contained on site such that there are no releases to the environment for a period of five years from the date the revised Group Standard is enacted, and allow the refilling ('topping up') of these systems with such foams for the same period – Schedule 2, clause 3.

This clause is designed to incorporate banded bulk fuel storage tanks and other systems where the firefighting foam product is able to be contained once used. Where the design of the system includes mechanisms to trap and contain all the foam, it comes under this clause.

The topping up of C8 firefighting foam products for points 3 and 4 will not be allowed once the listing of PFOA and related compounds in the Stockholm Convention is put into the HSNO Act. Topping up of C6 firefighting foam products will still be allowable. The onus will be on the company that owns the installation to ensure that the correct substance is used for topping up.

5. Before installing a fluorine-free firefighting foam in an existing firefighting system containing PFAS compounds, the firefighting foam system must be thoroughly cleaned to remove, as far as reasonably practicable, any residual fluorinated organic compounds; and any fluorinated firefighting foam product, or wastewater produced in the cleaning process is collected, securely contained and disposed of in accordance with the provisions in proposal 6 below – Schedule 2, clause 6.

The EPA intendeds to provide guidance on what is considered to be 'as far as reasonably practicable'. This would be based on a number of factors such as risk assessment of the particular situation, analytical capability, and internationally established limit values. Alternatively, such limits could be prescribed in the group standard.

Consultation question on the cleaning of firefighting systems containing PFAS

5. What do you think of the practicality of these cleaning requirements, in terms of the resources and costs involved?
6. Require that all firefighting foam products that contain PFAS compounds and all fluorinated organic wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be disposed of by high-temperature incineration, or other method approved under the Basel Convention for the disposal of PFOS-containing substances, and may not be diluted to meet discharge guidelines before discharge to the environment.

As there is no facility available in New Zealand for disposal for these substances at this point, export for disposal at a recognised facility is the only viable option available to those who have these substances in New Zealand – Schedule 2, clause 7.

Consultation question about the disposal of PFAS and fluorinated wastes

6. What do you think of the practicality of these disposal provisions, in terms of the resources and costs involved?
7. A person supplying a firefighting foam product must ensure that the producer's certification of its fluorine content (or absence of) is clearly displayed on a label or document provided with the product – Schedule 1, clause 8.
8. Subject to the proposals above relating to PFAS-containing wastes, all foam wastes, including fluorine-free foam, must be contained where possible. Essential uses and emergency incidents where there are direct releases to the environment are tolerable provided that all reasonable and practicable measures are taken to minimise environmental harm, such as with roadside fires and spills, on-water incidents in ports or marinas. Schedule 1, clause 9.

Consultation questions about containing foam wastes

7. Would your business be able to contain all foam wastes?
8. If not, is this due to cost or practical difficulties?
9. Remove the specific exclusion of PFOS and PFOA from the Group Standard. These substances are already excluded from the scope of the group standard, through being listed as POPs under schedule 2A of the HSNO Act or having been shown to have met the criteria to be listed as a POP.

Proposed introduction of fluorine-free foams

Concerns are sometimes expressed about whether the alternative fluorine-free foams, although not containing persistent PFAS compounds, can be certain of being free of other persistent, toxic and/or bioaccumulative compounds. There are two options to address this:

Option 1: amending the scope of the Group Standard

- amending the set of hazard classifications allowed under the group standard for firefighting foams (for example, classifications 6.6A/B, 6.8A/B/C, 6.9A, 9.1A/B could be excluded), or
- including specific limits on particular ecotoxic properties in the product specification.

Option 2: EPA assessment of assignment to the group standard

- This option would require an importer or manufacturer who wished to place a substance under the group standard to notify the EPA of that and to provide the full composition of the substance.
- This would allow a determination of whether the substance contained any components of concern and was not covered by the Group Standard.

- This will give the EPA a record of all substances used as a firefighting foam in New Zealand. As this is a requirement for assigning a substance to a group standard, it is only required the first time a firefighting foam is imported/manufactured

Clause 7 of Schedule 1 in the draft revised Group Standard contains Option 2. Please see the Appendix to this document.

Consultation questions on fluorine-free foams

9. Do you have any concerns about fluorine-free foams potentially containing other persistent, toxic and/or bioaccumulative compounds?
10. Which option for addressing these concerns do you prefer and why?

Proposed phase out of 'modern' fluorotelomer C6 firefighting foams

The EPA is also proposing to phase out C6 firefighting foams. This is not required by the Stockholm Convention, but it has been recommended by the Conference of the Parties that it not be used as an alternative to C8 firefighting foam. Its phase out has also been implemented by other regulators overseas. The EPA is proposing phasing out C6 firefighting foam to prevent potential environmental harm from these substances.

The options for phasing out C6 firefighting foams are:

Option 1: Phase out C6 and C8 firefighting foams at the same time.

- Currently, it would be difficult and costly to differentiate between C8 and C6 firefighting foams by chemical analysis.
- Phasing out both classes of firefighting foam at the same time will make compliance easier for regulated entities.
- This is EPA's preferred option.

Option 2: Grant permissions, under section 95A of the HSNO Act, for companies to continue to use C6 firefighting foams after the phase out period is completed

- C6 and C8 firefighting foams will still be phased out at the same time, but the EPA could grant permissions for companies to continue to use C6 firefighting foams in existing contained installations only after the phase out period is completed.
- Applications will need to be submitted prior to the end of the phase out period.
- Applicants will need to tell the EPA:
 - the type of substance
 - where will it be used and stored
 - the type of delivery system (eg, on bulk storage tank, sprinkler in building, etc.)
 - how long the phase out period will be.
- Applicants will also need to provide confirmation to the EPA that the substance does not contain C8 AFFFs.

Consultation questions about phasing out C6 AFFF

11. Do you agree with phasing out C6 AFFF at the same timeframe as C8 AFFF?
12. Which is your preferred option?
13. What are your reasons?
14. Can you estimate the cost to your business of phasing out C6 AFFF?

Consultation questions

15. Do you have any other comments to make about the proposed amendments?
16. Do you have any comments about the workability of the draft amendments shown in the revised Group Standard in the Appendix? Please include the relevant clause and sub-clause number in providing any feedback.

Matters to be considered by the EPA under section 96C of the HSNO Act

Subsections 96C(1)(a), (b), (c), (e) and (f)

Before issuing or amending a group standard, subsections 96C(1)(a), (b) and (c) of the HSNO Act require the EPA to be satisfied that “issuing the group standard is a more efficient and effective way of managing the risks of all the hazardous substances in the identified group than the approval process in Part 5.”

Further, where a group standard applies to more than one hazardous substance, the EPA must be satisfied that all the hazardous substances in the identified group “have a similar nature, are of a similar type, or have similar circumstances of use, such that the risks of the group of hazardous substances...can be effectively managed by 1 set of conditions” (section 96C(1)(e)).

Section 96C(1)(f) requires the EPA to “consider the best international practices and standards for the safe management of hazardous substances and products ...”

Lastly, the particular considerations that apply when considering making a group standard in relation to a product, including a waste product, under section 96C(1)(d) are discussed.

Efficiency and effectiveness

The EPA considers that the proposed amendments will enhance the efficiency and effectiveness of the Group Standard by clarifying the requirements for firefighting chemicals in New Zealand, further reducing the possible adverse effects of these chemicals to people and the environment. This will be achieved by restricting the use of PFAS chemicals in firefighting foam and providing clear requirements on use and disposal.

Alternative ways of regulating, such as individual approvals, would be less efficient because of the need for specific detail about the composition of the substance that is required for an individual approval. This would cause uncertainty over the regulatory status of a firefighting chemical when imported.

Amending the Group Standard is considered the best way of managing the risks that firefighting foams pose to people and the environment while ensuring that the conditions in the Group Standard are only applied to the extent that it is reasonably necessary to manage those risks.

Placing restrictions on chemicals that have potential to cause significant harm to the environment and to people if mishandled and used inappropriately is consistent with section 7 of the HSNO Act which requires the EPA to take into account “the need for caution in managing adverse effects where there is scientific and technical uncertainty about those effects”.

Similar nature, type or circumstance of use

The EPA considers that these requirements were established at the time the group standard was first issued in 2006. The proposed amendments have little effect on the scope of the substances covered by the group standard. Substances that fall within the group standard will continue to be of a similar nature, type and circumstance of use.

Best international practices and standards

Internationally, the regulation of PFAS chemicals in firefighting foam is varied. However several overseas jurisdictions have recently banned or placed restrictions on PFAS chemicals in foams.

The EPA has considered standards established in other jurisdictions for the purposes of managing the risks associated with firefighting foams, that are, or contain hazardous substances, and is of the view that the proposed amendments reflect best international practice.

The proposed amendments are prompted by potential adverse effects which were not addressed in the original Group Standard, and which have been addressed by overseas regulators to reflect best practice.

If the changes are not made, the regulation and management of firefighting chemicals in New Zealand will be less well aligned with international best practice. Due to a lack of consistency in overseas requirements, it is not possible to align with all jurisdictions, and the EPA has applied judgement in an attempt to maximise the degree of consistency while achieving the stated aims of the Group Standard, specifically to reduce the hazards presented by these products.

United States of America

In the United States, the Environmental Protection Agency established the 2010/15 PFOA Stewardship Programme. Its purpose was to eliminate, by the end of 2015, the manufacture of any fluorosurfactant which could breakdown into PFOA or PFOS⁴. Although this was a voluntary programme, the eight major manufacturers of PFAS committed to this target date. For the firefighting foam industry, this meant that all AFFF manufacturers were required to reformulate their foam concentrates using C6 fluorosurfactants. With some exceptions, existing stocks of legacy AFFF, whether PFOS or other long-chain PFAS, are not prohibited from use.

Washington State passed legislation in March 2018 that restricts the sale and use of Class B firefighting foams containing PFAS, as follows:

- PFAS-containing foams may not be discharged or otherwise used for training purposes from 1st July 2018;
- Manufacturers may only sell or distribute PFAS-containing foams for use in Washington State for the following specific uses, from 1st July 2020:

⁴ That is, fluorosurfactants with a carbon chain length of C8 or more.

- Airport and military applications where the use of a PFAS-containing firefighting foam is required by Federal law, including but not limited to military and FAA-regulated civil airports (but see below)
- Petroleum terminals
- Oil refineries
- Chemical plants

The Commonwealth of Kentucky added a statute in February 2019 that bans, from 15 July 2020, use of all PFAS-containing Class B foams for testing and training purposes, unless required by regulation, or ordinance.

The US Military Specification (Mil Spec) for AFFF specifically requires the inclusion of fluorosurfactants, meaning that no fluorine-free foam can currently qualify as a Mil Spec product. Until recently, Mil Spec foams were also required to be used at all Federal Aviation Administration (FAA) regulated civilian airports. However, the FAA Reauthorisation Act of 2018 will eliminate this requirement within three years.

European Union

In the European Union (EU), PFOS was added to the EU's POPs Regulation in August 2010. This prohibited the manufacturing, sale and use of PFOS in substances or in preparations at a concentration greater than 10 mg/kg (ppm). However, firefighting foams that were placed on the market before 27 December 2006 were able to be used until 27 June 2011.

In June 2017, the EU amended their REACH⁵ regulations to restrict PFOA, its salts, and related compounds. European Regulation EU 2017/1000 requires that, by July 2020, fluorosurfactant manufacturers reduce the amount of impurities in their C6 fluorosurfactants to:

- less than 25 parts per billion (ppb) for PFOA or its salts
- less than 1000 parts per billion (ppb, or 1 ppm) for a combination of PFOA-related substances.

However, firefighting foam products that are placed on the market before 4 July 2020 are exempt from these provisions, provided that where they are used for training purposes, releases to the environment are minimised and effluents collected are safely disposed of. These provisions will need to be amended when the EU adopts the Stockholm Convention listing of PFOA and related compounds into their POPs Regulations.

Although the European Chemicals Agency (ECHA) is continuing to review, with a view to restricting other groups of PFAS, it has so far not introduced any restrictions on the sale or use of C6 AFFFs within the EU.

⁵ Registration, Evaluation, Authorisation and Restriction of Chemicals.

Australia

In Australia, Queensland and South Australia have regulated PFAS in firefighting foam. Other states are yet to take action. The Federal Government has not yet ratified the 2009 Stockholm Convention listing of PFOS, although this is underway.

In January 2018, South Australia became the first government in the world to effectively ban all PFAS-containing foams (both short-chain C6 and long-chain C8 foams⁶). A two-year transition period was provided for the use of existing foams, including the filling or refilling of existing systems. Exemptions may be authorised by application to EPA South Australia for those facilities that cannot comply within the required timeframe. A further new requirement was that (new) firefighting foam products must have producer's certification of their fluorine content clearly displayed on a label or document provided with the product.

The Queensland Government introduced their Environmental Management of Firefighting Foam – Operational Policy in July 2016. This policy effectively banned foams containing PFOS and foams containing PFOA and PFOA-related compounds (legacy C8 foams). Foams containing short-chain fluorotelomers (C6 or shorter perfluorinated groups) are still able to be used, if they are found to be the only viable option, but subject to the following restrictions:

- The foam must be 'C6 purity compliant' (defined as containing not greater than 50 mg/kg (ppm) of any PFAS with carbon chain greater than 6 carbon atoms, but excluding PFOS for which the impurity limit is 10 mg/kg).
- No releases directly to the environment (e.g. to unsealed ground, soakage pits, waterways or uncontrolled drains).
- All releases must be fully contained on site.
- Containment measures such as bunds and ponds must be controlled, impervious and must not allow firewater, wastewater, runoff and other wastes to be released to the environment (e.g. to soils, groundwater, waterways, stormwater, etc.).
- All firewater, wastewater, runoff and other wastes must be disposed of as regulated waste to a facility authorised to accept such wastes.

Full compliance with the Queensland policy is expected within three years of its approval (i.e. by July 2019). However, users that are unable to achieve this for practical reasons are able to seek dispensation on the basis of their implementation plan and specific timelines for this.

Section 96C(1)(d) of the HSNO Act

There are particular considerations before issuing or amending group standards in relation to a product, including a waste product. This is relevant to the proposals for disposal to PFAS firefighting foam waste products generated from the use of PFAS firefighting foam or the cleaning out of a firefighting system which has contained PFAS firefighting foam. Subsection 96C(1)(d) requires the EPA to be satisfied that—

⁶ The "C" in "C8" and "C6" refers to the distribution of perfluorinated carbon chain lengths with a majority being 8 carbons or 6 carbons respectively.

- a. The benefits associated with a reduction of environmental and health risks outweigh the economic costs associated with complying with the group standard; and
- b. The proposal is the most efficient and effective way of managing the risks of the waste product, having considered matters including alternative methods of managing those risks; and
- c. The group standard is only applied to the extent that it is reasonably necessary to manage the risks of the waste product.

Environmental benefits and economic costs

The proposed disposal methods for PFAS waste products are similar to those used for disposing of persistent organic pollutants. However, high temperature incineration, which is the method of disposal recommended by all manufacturers of PFAS containing firefighting foams, is not available in New Zealand, so most PFAS waste will have to be exported overseas for disposal through a method recognised under the Basel Convention⁷. If the foam or waste product is PFAS-based, it may be disposed of by any other method that meets the same Basel Convention requirements. Disposal of PFAS contaminated wastewater may be permitted to a wastewater system if the concentration of any PFAS compound is acceptable under Trade Waste bylaws.

These disposal methods may impose significant economic costs on businesses. However, it is considered that the environmental benefits of requiring PFAS waste to be disposed of through these methods outweigh the costs, as the potential harm of releasing persistent and potentially bioaccumulative and toxic chemicals into the environment will be avoided. Potential harms as a result of the inadequate disposal of PFAS waste include contamination of soil and groundwater, with a further potential for contamination of drinking water and accumulation in animal and human tissue.

A report published by the Nordic Council of Ministers in March 2019 assessed the ‘cost of inaction’ with respect to PFAS use, by presenting a socio-economic analysis of the adverse environmental and health impacts linked to PFAS exposure⁸. Costs of inaction are defined as those society will pay in the future if steps are not taken now to limit emissions. The findings of the report indicate that the costs are substantial, with annual health-related costs estimated to be 52-84 billion Euro for all the countries of the European Economic Area. Non-health related costs associated with environmental contamination with PFAS are considered in the report to cover monitoring for contamination, remediation of contaminated land and water, provision of temporary uncontaminated drinking water, upgrading of treatment works, and impacts on biodiversity, among other costs. For the Nordic countries alone, these costs were estimated between 46 million – 11 billion Euro. One of the case studies used to prepare the report related to contamination from use of PFAS-containing firefighting foam. In both Europe and the USA, hundreds of millions of Euros have already been spent on upgrading drinking water treatment and remediation of PFAS-contaminated soil. Similar activities, with corresponding costs, are now also occurring in Australia.

⁷ That is, in accordance with section G of Chapter IV of the Basel Convention POPs Waste technical guidelines.

⁸ The Cost of Inaction: A socioeconomic analysis of environmental and health impacts linked to exposure to PFAS; Gretta Goldenman, Meena Fernandes, Michael Holland, Tugce Tugran, Amanda Nordin, Cindy Schoumacher and Alicia McNeill; Nordic Council of Ministers; March 2019.

Efficiency and effectiveness

In practice there are no acceptable alternatives for disposing of PFAS firefighting foam waste. Disposal into landfill carries the long term risk of the waste leaching into soil, groundwater and surface water at the landfill site and surrounding areas. Contaminated dust particles may also be emitted into the atmosphere over time. Similarly, disposal to wastewater treatment plants is not acceptable since it has been shown that PFAS compounds are not removed but pass through into the receiving environment or are absorbed into biosolids which may be intended for beneficial uses such as compost production. Incineration of PFAS waste, which is the method recommended by manufacturers of PFAS-containing firefighting foams, is not feasible in New Zealand, as this requires special facilities that do not currently exist here.

Minimising harm

The proposed disposal methods are reasonably necessary given that PFAS firefighting foams have been used extensively throughout New Zealand from the 1960's to the present day. Much of the C8 legacy foam still in use would be approaching the end of its recommended lifetime and would be due for replacement, in any event. To minimise or eliminate the potential harm to human health and the environment caused by PFAS, it is necessary to dispose of these foam products and their wastes in an appropriate manner.

The next steps

Following consultation on the proposal to issue a revised group standard for Fire Fighting Chemicals:

- Each written submission will be reviewed;
- A summary of submissions will be prepared and sent to all submitters, and placed on the EPA New Zealand website;
- If required by section 60 of the HSNO Act, a hearing will be held; otherwise, the EPA will consider the proposal and the submissions;
- The EPA's decision on the group standard proposal will then be published on the EPA website at <https://www.epa.govt.nz/public-consultations/decided/>.

Appendix – Fire Fighting Chemicals Group Standard 2017

1. *This track changed version of the Firefighting Chemicals Group Standard 2017 (2017 Group Standard) has been created for consultation purposes.*
2. *The track changes represent a proposal to amend the original Group Standard. This would result in an instrument called the **Firefighting Chemicals Group Standard Amendment 2019**. Prior to or at the time of it coming into force, a consolidated version of the 2017 Group Standard that incorporates the changes would then be published.*
3. *Your submissions on proposed amendments represented by track changes in this draft will be considered by a decision making committee who will also decide whether the proposed amendments will proceed and what the final form of any amendments will be.*
4. *It is proposed that any changes will come into force on a date 6 months after any amendments are made.*

Firefighting Chemicals Group Standard 2017 – HSR002573

Pursuant to clause 5 of Schedule 7 of the Hazardous Substances and New Organisms Act 1996 (the Act), the Environmental Protection Authority has reviewed and, for the purposes of updating, reissues this Group Standard.

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1 Name of Group Standard

Firefighting Chemicals Group Standard 2017.

HSNO Approval Number

The HSNO Approval Number for this Group Standard is HSR002573

2 Commencement

This Group Standard comes into force on 1 December 2017.

3 Interpretation

- (1) In this Group Standard, unless the context otherwise requires, words and phrases shall have the meanings given to them in Schedule-23. Any words or phrases that are used but not defined in this Group Standard but that are defined in the act have the same meaning as the Act.
- (2) In this Group Standard, references to a hazardous property of a substance being equivalent to a specified HSNO hazard classification, means a reference to the specified hazard classification as set out in the Hazardous Substances (Classification) Notice 2017.

4 Scope of Group Standard

- (1) This Group Standard applies to hazardous substances under section 96B(2)(a),(b) and (c) of the Act.
- (2) This Group Standard applies to solid or liquid substances that are imported or manufactured for use as a fire fighting chemical.
- (3) A substance referred to in subclause (2) must have one or more of the following (but only the following) hazards:
 - (a) acute toxicity, HSNO 6.1D or 6.1E classification;
 - (b) HSNO 6.1E (aspiration hazard) classification;
 - (c) skin irritancy, HSNO 6.3A or 6.3B classification;
 - (d) eye corrosivity, HSNO 8.3A classification;
 - (e) eye irritancy, HSNO 6.4A classification;
 - (f) respiratory sensitisation, HSNO 6.5A classification;
 - (g) contact sensitisation, HSNO 6.5B classification;
 - (h) mutagenicity, HSNO 6.6A or 6.6B classification;
 - (i) reproductive toxicity, HSNO 6.8A, 6.8B or 6.8C classification;
 - (j) target organ toxicity, HSNO 6.9A or 6.9B classification;
 - (k) ecotoxicity, HSNO class 9.

Substances excluded from Group Standard

- (4) This Group Standard excludes any substance if it contains—

- (a) asbestos; or
- (b) a chemical that:
 - (i) is a persistent organic pollutant within the definition in section 2 of the Act; or
 - (ii) exhibits the characteristics of a persistent organic pollutant as set out in paragraph 1 of Annex D to Schedule 1AA of the Act.

~~(5) This Group Standard excludes any substance that is or contains—~~

~~(a) perfluoroalkyl sulfonate; or~~

~~(b) perfluorooctanoic acid.~~

~~(6)~~(5) This Group Standard excludes any substance that contains a chemical that is a mutagen or reproductive toxicant that is not listed on the Inventory of Chemicals, unless—

- (a) the new mutagen or reproductive toxicant is used to completely replace an existing mutagen or reproductive toxicant in the substance; and
- (b) the new mutagen or reproductive toxicant has a lower hazard classification than the existing mutagen or reproductive toxicant.

~~(7)~~(6) This Group Standard excludes any substance that is a hazardous chemical not listed on the Inventory of Chemicals.

~~(7)~~ For the purposes of subclause ~~(67)~~, “chemical” means any element or compound in its natural state or obtained by any production process, including any impurities and any additive necessary to preserve the stability of the chemical but excluding any solvent which may be separated without affecting the stability of the chemical or changing its composition.

~~(8) This clause is subject to clauses 6 to 9.~~

5 Conditions of Group Standard

~~(1)~~ The conditions that specify the obligations and restrictions for substances covered by this Group Standard are set out in Schedule 1.

~~(4)~~(2) ~~This clause is subject to clauses 6 to 9.~~

6 Application of Schedule 2

~~(1) Schedule 2—~~

~~(a) applies for the purposes of clauses 7, 8 and 9; and~~

~~(b) expires on the date that is 5 years after the date of its commencement.~~

7 Application of Group Standard to PFOA-related compounds

~~(1) This clause applies despite clause 4(4)(b)(ii).~~

~~(2) A substance that is or contains PFOA-related compounds must be treated as falling within the scope of this Group Standard under clause 4 (Scope of Group Standard) during the period in which Schedule 2 applies.~~

8 PFAS firefighting foams

- (1) This clause applies where a PFAS firefighting foam falls within the scope of this Group Standard under clause 4 (Scope of Group Standard) or clause 7.
- (2) Until the expiry of Schedule 2, the conditions that specify the obligations and restrictions for PFAS firefighting foams are—
 - (a) the conditions that apply in accordance with clause 5; and
 - (b) the conditions that are set out in Schedule 2.
- (3) The application of this Group Standard to PFAS firefighting foams ceases on the expiry of Schedule 2.

9 PFAS firefighting foam waste products

- (1) Subject to subclause (2), this Group Standard applies to PFAS firefighting foam waste products under section 96B(2)(d) of the Act, to the extent provided for in Schedule 2.
- (2) The conditions that specify the obligations and restrictions for PFAS firefighting foam waste products are set out in Schedule 2.
- (3) The application of this Group Standard to PFAS firefighting foam waste products ceases on the expiry of Schedule 2.

Advisory Note: In addition to requirements specified in this document, people who are undertaking work in a workplace involving hazardous substances or waste products covered by this Group Standard have obligations under the Health and Safety at Work Act 2015.

Schedule 1: Conditions of Group Standard

Part 1– Compliance with EPA Notices

1 Labelling and advertising

Substances covered by this Group Standard under clause 4 (Scope of Group Standard) must comply with the relevant provisions of the Hazardous Substances (Labelling) Notice 2017.

2 Safety data sheets

Substances covered by this Group Standard under clause 4 (Scope of Group Standard) must comply with the relevant provisions of the Hazardous Substances (Safety Data Sheet) Notice 2017.

3 Packaging

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Packaging) Notice 2017.

4 Disposal

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Disposal) Notice 2017.

5 ~~Restriction~~ [General restriction](#) on supply, storage and use

Substances within the scope of this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Hazardous Property Controls) Notice 2017.

Part 2 – Notification to the Authority

6 Inventory of Chemicals

- (1) When a substance is imported into, or manufactured in, New Zealand after 30 June 2006, the importer or manufacturer must ensure that all hazardous chemicals contained in the substance are listed on the Inventory of Chemicals.
- (2) If that substance contains a hazardous chemical that is not listed on the Inventory of Chemicals, then the importer or manufacturer of the substance must at the time they first import or manufacture the substance, notify the Authority in writing of—
 - (a) the name of the substance; and
 - (b) the HSNO approval number and/or title of the group standard under which the substance is deemed to have been approved; and
 - (c) the name and CAS number of the chemical not listed on the Inventory of Chemicals that is present in the substance; and
 - (d) the concentration of that chemical in the substance; and
 - (e) the hazardous properties of the chemical, including the provisions of the relevant hazard data used to assign the substance to the group standard; and
 - (f) the proposed use of the substance.
- (3) Subclause (2) applies subject to clause 4(6) – (8) of this Group Standard (Scope of Group Standard).

Part 3 – Other Matters

7 Assigning a substance to a group standard

- (1) If an importer or manufacturer considers that this Group Standard applies to the importation or manufacture of a substance, then the importer or manufacturer is responsible for assigning the substance to this Group Standard.
- (2) In order to assign the substance to this Group Standard, the importer or manufacturer must—
 - (a) ensure that the substance complies with clause 4 of this Group Standard (Scope of Group Standard); and
 - (b) keep a record of how it was determined the substance complies with clause 4 of this Group Standard.
- (3) The importer or manufacturer must—
 - (a) ensure that the record contains sufficient information to allow for independent verification that the substance complies with clause 4 of this Group Standard (Scope of Group Standard); and
 - (b) have that record available for inspection.
- (4) In the case of a substance that is a firefighting foam, the importer or manufacturer must, as soon as practicable after importation or manufacture and before supplying to any other person, provide the EPA with a copy of the record.

8 Requirement to display certification of fluorine content of firefighting foams

A person must not supply a substance that is a firefighting foam unless the manufacturer's certification of its fluorine content (including 0% if applicable) is clearly displayed on a label or document provided with the firefighting foam.

9 Requirement to contain firefighting foams

- (1) A person who uses a substance that is firefighting foam must take reasonable care to contain it within its application area.
- (2) A person who uses a firefighting foam does not fail to meet a reasonable standard of care by reason only that the foam is discharged to the environment if—
 - (a) the firefighting foam is discharged for the purpose of responding to an emergency incident; and
 - (b) the person takes all reasonable and practicable measures to minimise environmental harm.
- (3) This clause is subject to Schedule 2.

Schedule 2: Transitional measures relating to PFAS firefighting foams

Basel Convention POPs Waste Technical Guidelines means—

The General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (adopted by the Conference of the Parties, 14, May 2019).

contained firefighting system means a system made up of a firefighting system and equipment or mechanisms that collect or contain firefighting foam when it is discharged so that the foam is prevented from being released to the environment

firefighting system—

(a) means a system for preventing, suppressing or extinguishing a fire and includes:

(i) a fire extinguishing system on a fire truck; and

(ii) an on-site fixed fire extinguishing system; and

(iii) any pumps, pipes, hoses, nozzles, sprinklers, storage containers, and other equipment associated with the system; and

(b) includes a small fire extinguisher

fluorine free firefighting foam means a firefighting foam that does not contain PFAS (or perfluoroalkyl and polyfluoroalkyl substances)

PFAS firefighting foam means a firefighting foam that contains PFAS (or perfluoroalkyl and polyfluoroalkyl substances)

PFAS (or perfluoroalkyl and polyfluoroalkyl substances) means a class of fluorinated organic compounds containing at least one fully fluorinated carbon atom

PFAS firefighting foam waste product means a waste product generated from the use of PFAS firefighting foam or the cleaning out of a firefighting system which has contained PFAS firefighting foam

small fire extinguisher means a fire extinguisher with a capacity of less than 90L and includes a hand-held or mobile fire extinguisher

1 Purpose of this Schedule

The purpose of this Schedule is to allow for the phase out of PFAS firefighting foams in New Zealand by—

- (a) restricting the purpose for which they may be imported or manufactured to importation or manufacture for certain transitional uses provided for in clauses 3,4 and 5 of this Schedule; and
- (b) providing for conditions attaching to their importation or manufacture, use, storage and disposal, and the use, storage and disposal of PFAS firefighting foam waste products for the purpose of protecting the environment.

2 Restrictions on importation, manufacture and use of PFAS firefighting foams

A person must not—

- (a) conduct training involving the use of a PFAS firefighting foam; or
- (b) other than for a use described in clause 3, 4 or 5 during the relevant transitional period,—
 - (i) import, manufacture, use, or store a PFAS firefighting foam; or
 - (ii) fill or refill a firefighting system with PFAS firefighting foam.

3 Use of PFAS firefighting foams in contained firefighting systems

- (1) In this clause **transitional period** means the period ending on a day 5 years from the date of the commencement of this Schedule.
- (2) A person may use a PFAS firefighting foam during the transitional period for the purpose of operating a contained firefighting system if it is—
 - (a) contained within the contained firefighting system; or
 - (b) stored securely outside the contained firefighting system for use in the system; or
 - (c) used to refill the contained firefighting system.

4 Use of PFAS firefighting foams in firefighting systems other than contained systems

- (1) In this clause transitional period means the period ending on a day 2 years from the date of commencement of this schedule.
- (2) A person may, in accordance with subclauses 3 and 4, use a PFAS firefighting foam during the transitional period for the purpose of operating a firefighting system if it is—
 - (a) contained within the firefighting system; or
 - (b) stored securely for use in the firefighting system; or
 - (c) used by discharging the firefighting foam from the firefighting system for the purpose of responding to an emergency incident in accordance with the purpose and design of the system; or

- (d) used to refill the firefighting system, except where the firefighting system is a small fire extinguisher.
- (3) The person must take all reasonably practicable steps to prevent the discharge of the foam to the environment.
- (4) In the case of an emergency, what is reasonably practicable may be determined in light of the nature of the emergency.

5 Use of PFAS firefighting foam for testing firefighting systems

- (1) A person may use a PFAS firefighting foam for the purpose of testing a fire fighting system if the use is—
 - (a) part of a documented programme that is designed to test the operation of the firefighting system; and
 - (b) for the purpose of a transitional use described in clause 3 or 4 during the applicable transitional period described in that clause.
- (2) The person must take all reasonably practicable steps to prevent the discharge of the foam to the environment.

6 Requirements relating to transitioning firefighting systems from PFAS firefighting foams to fluorine free firefighting foams

- (1) A person who refills a firefighting system must ensure that, before transitioning the firefighting system from a system that contains PFAS firefighting foam to a system that contains a fluorine free firefighting foam,—
 - (a) the firefighting system is thoroughly cleaned so as to remove, as far as reasonably practicable, any residual PFAS firefighting foam; and
 - (b) any PFAS firefighting foam or PFAS firefighting foam waste product produced during the cleaning process is collected and securely contained for disposal.
- (2) A person who prepares, collects or transports a PFAS firefighting foam or PFAS firefighting foam waste product for disposal must take all reasonably practicable steps to prevent its discharge to the environment.

7 Disposal of PFAS firefighting foams and PFAS firefighting foam waste products

- (1) A person must not dispose of a PFAS firefighting foam or a PFAS firefighting foam waste product other than by—
 - (a) high-temperature incineration, to the extent permitted by the laws of New Zealand; or
 - (b) any other method that, if the foam or waste product were or contained PFOS, would conform with section G of Chapter IV of the Basel Convention POPs Waste Technical Guidelines; or
 - (c) export from New Zealand for the purpose of disposal by a method that, if the foam or waste product were or contained PFOS, would conform with section G of Chapter IV of the Basel Convention POPs Waste Technical Guidelines.
- (2) The methods described in subclause (1) do not include dilution.

8 Exception in respect of certain PFAS firefighting foam waste products

- (1) Clause 7 does not apply to a liquid PFAS firefighting foam waste product that is disposed of in accordance with an applicable trade waste bylaw if the bylaw expressly permits the discharge of the trade waste containing a PFAS component or components because the component or components are present below a specified concentration.
- (2) In this clause, applicable trade waste bylaw includes a trade waste agreement or trade waste consent made or recognised under the applicable trade waste bylaw.

Advisory Note: [an advisory note will be included stating the commencement date of of the Fire Fighting Chemicals Amendment Group Standard which will also determine the commencement date of Schedule 2]

Schedule 3: Interpretation

asbestos has the same meaning as in the Health and Safety at work (Asbestos) Regulations 2016 but does not include substances that contain naturally occurring traces of asbestos

CAS number means Chemical Abstract Services

condition means any obligation or restriction imposed upon a substance by a group standard

firefighting chemical means any chemical that is used to prevent, suppress or extinguish a fire and includes any suppressant that reduces the surface tension of water and/or produces a foam which is applied directly on to the flame of a fire to extinguish the fire. It also includes fire retardants that are mixed with water and applied to unburnt vegetation so that combustion is not supported

firefighting foam means a substance intended for use to prevent, suppress or extinguish fires, and includes both a foam concentrate and an aqueous solution for use in the production of firefighting foam

Inventory of Chemicals means an inventory kept and maintained by the Authority of chemicals known to be present in New Zealand

~~**perfluoroalkyl sulfonate** is a generic term used to describe any fully fluorinated carbon chain sulfonate, and includes any higher and lower homologues as well as perfluorooctane sulfonate~~

~~**perfluorooctane sulfonate** (PFOS) means the parent acid (CAS number 1763-23-1) and any salts thereof, including the potassium (CAS number 2795-39-3), lithium (CAS number 29457-72-5), ammonium (CAS number 29081-56-9) and diethanolamine (CAS number 70225-14-8) salts~~

~~**perfluorooctanoic acid** (PFOA) is a fully fluorinated eight carbon chain carboxylic acid (CAS number 335-67-1)~~

PFAS firefighting foam has the same meaning as in Schedule 2

PFAS firefighting foam waste product has the same meaning as in Schedule 2

PFOA means perfluorooctanoic acid

PFOA-related compounds means any substance that degrades to PFOA

PFOS means perfluorooctane sulfonic acid

substance means any solid or liquid fire fighting chemical that is within the scope of clause 4 of this Group Standard (Scope of Group Standard)

supply includes supply (or resupply) by way of gift, sale or exchange; and occurs on the passing of possession

workplace has the same meaning as in the Health and Safety at Work Act 2015

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