Regulatory Guide for PFAS firefighting Foams in Australia

Based on feedback from our customers, Seaguard Australia has produced this clarifying explanatory Guide to navigate the sometimes confusing and misleading information being offered by some, regarding Australian regulations around PFAS containing foams (C8 and C6) plus considerations when transitioning away from PFAS-based foams.

It also reviews the regulatory position in Europe (EU) which could influence potential future firefighting foam regulatory positions in Australia.

Background

Concerns are justified around PFAS chemicals and their long-term effects on our environment and human health, particularly long-chain C8-PFAS. C8-PFAS often called 'forever chemicals' were found harmful in late 1990's. In 2000, the leading US manufacturer shocked the market by pulling out of all C8-PFAS manufacture including firefighting foams, and they ceased production globally by end 2003. A key C8-PFAS breakdown product PFOS was POP listed under the UN Stockholm Convention in 2009 due to its Persistent, Bioaccumulate and Toxic (PBT) status plus indications of adverse human health impacts. PFOA was POP listed in 2019, followed by PFHxS in 2022 and long-chain C9-21 PFAS in May 2025.

C6-PFAS while still persistent, are not categorised bioaccumulative or toxic.

C8-PFAS foams banned under IChEMS from 1st July 2025 in Australia

Some of our customers are concerned and surprised that Australian Department of Environment under its Industrial Chemicals Environmental Management System (IChEMS) has banned three long-chain PFAS chemicals – PFOA, PFOS and PFHxS from sale and use from 1st July 2025, which impacts all legacy long-chain C8-firefighting foams. Unintentional trace contaminant levels in firefighting foams are set at 0.8mg/kg (0.8ppm) for each of these three chemicals and their salts, with combination of each chemical's related substances at 1mg/kg (ppm) per prohibited chemical.

This implements existing UN Stockholm Convention legislation where PFOS, PFOA and PFHxS are already banned as listed Persistent Organic Pollutants (POPs).

Foams that could breakdown to PFOS and PFHxS ceased global production by end of 2003. Only C8-fluorotelomer foams which could break down to PFOA continued manufacture and sale until end 2015, so most current foam stocks are unlikely to be affected.

These three C8-PFAS chemicals, listed as Persistent Organic Pollutants (POPs) under the Stockholm Convention, are widely banned in most countries around the world. This regulatory change implements Australia's obligation as a signatory to comply with these Stockholm Convention POP listing regulations.

Other legacy long-chain C9-C21-PFAS have also recently been POP listed under the Stockholm Convention, but these PFAS were exclusively associated as precursors of legacy C8-PFAS which could break down to PFOS, PFOA or PFHxS, and are now banned from use in Europe (EU).

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Australia's Department of Health has confirmed that medical devices have special exemption from this ban under the Therapeutic Goods Administration (TGA).

C6-PFAS foams are NOT banned from use in Australia (except practically so in QLD & SA)
All leading branded PFAS containing firefighting foams manufactured since end 2015, including all Seaguard's fluorinated foams are high purity short-chain C6-PFAS based, meeting these legacy C8-PFAS Unintentional Trace Contaminant (UTC) limits and are not banned from use in Australia (outside QLD and SA).

Our foams comply with leading manufacturer's voluntary adherence with the US EPA's PFOA Stewardship Program, the United Nations Stockholm Convention POP listing process and EU PFAS regulations which has banned the use of PFOS since 2009, PFOA since 2019 and PFHxS since 2022.

Seaguard C6-PFAS foams meet these criteria and are therefore permitted for continued use across Europe and Australia, (*except QLD and SA where these State regulations have practically banned the use of all PFAS containing foams since 2016 and 2018 respectively*).

Existing Australian PFAS foam regulations:

Queensland (QLD) banned C8-PFAS-foams from use in 2016

QLD was the first State to regulate PFAS-foams in Australia, implemented in July 2016, which required:

- the immediate removal of legacy C8-PFAS foams from service.
- Containment and control measures for all PFAS foams so none enters the environment.
- Phase out of C8-PFAS foams within three years (Jul.2019).
- Preference for F3-foams use wherever possible (where demonstrated to be impossible, special consideration may be given to use of high purity C6-foams provided complete collection and containment of all foam solution, firewater runoff and wastes used in impervious dikes with proper and safe disposal including accidental spills, testing and maintenance of fixed and mobile equipment).
- High temperature (>1,100^{O}C) disposal of all fluorinated organic wastes including firewater runoff and system cleaning.
- Containment of non-persistent F3-foam wastes wherever possible using all reasonable and practical measures to minimise environmental harm.
- A 10 parts per million (ppm or mg/L) limit of PFOS/PFHxS residual contamination in replacement foam stocks.
- A 50ppm limit of PFOA precursors and higher homologues (≥ C7) contamination after clean-out, in replacement foam stocks.

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- Full compliance by all foam users to implement F3-foams by July 2019
- Justification for extensions only possible if essential for major industries, with accompanying documented progress to F3 transition (difficult to achieve).

South Australia (SA) bans all PFAS foams from use in 2018

SA amended its Environmental Protection (Water Quality)2015 policy in Jan. 2018, banning the use of all PFAS foams. This policy included:

- A ban on the use of all C8- and C6 -PFAS firefighting foams for all applications with a timeframe of two years for compliance for all non-handheld applications [systems and vehicles] by Jan.2020.
- A ban on portable fire extinguishers upon re-charge, re fill or within two years of commencement of the policy, whichever is earlier.
- Provisions to address PFAS contamination in existing equipment.
- Certification of fluorine free concentration in replacement foam to be provided by suppliers.
- EPA South Australia may consider an exemption by justification of why F3-foams cannot be currently used at the site, with accompanying F3 transition plan.

New South Wales (NSW) phased out C8-PFAS from 2021

NSW Protection of Environmental Operations General Amendment (PFAS firefighting foams) Regulation, effective April 2021 required foam users to:

a. Prevent pollution caused by PFAS firefighting foams by:
    - making it an offence to discharge C8-and C6-PFAS firefighting foam for firefighter training or demonstration.
    - making it an offence to discharge C8-PFAS firefighting foam unless discharged by a relevant authority to prevent, extinguish, or attempt to extinguish a catastrophic fire or one with potential to be a catastrophic fire (from 26 September 2022).
    - by a person to prevent, extinguish or attempt to extinguish a fire on a water-craft in state waters or prescribed waters.
    - making it an offence to sell a portable fire extinguisher containing the precursor to C8- and C6-PFAS firefighting foams, except if the extinguisher is sold to particular persons, the owner or master of watercraft or a person granted exemption by EPA (from 26 September 2022).
b. Enable EPA to exempt a person or class of persons from offences in relation to prevention of pollution caused by certain types of PFAS firefighting foam.
c. Declare the EPA is the appropriate regulatory authority for a matter relating to the prevention of pollution caused by certain types of PFAS firefighting foam.

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- It also recognised that **"***Current F3s do not have the same level of efficacy [as AFFFs]***".**

Australian National PFAS Position Statement phased out C8-PFAS foams from 2019 - applies to all States and Territories (except QLD and SA).

This statement recognised complexities so outlined a unified vision for reducing further PFAS use across Australia by agreeing to the following objectives:

- Ongoing sale or use of C8-PFAS foams for any industrial or commercial application should be phased out in line with the Stockholm Convention
- Transitioning away from chemicals causing irreversible or long-term contamination of Australia's environment should be the ultimate goal for all users of PFAS in Australia.
- Where C6-PFAS are used, they should only be used in emergency situations in accordance with all relevant regulations.
- Any PFAS foam releases should be fully contained and wastes managed in accordance with the PFAS National Environmental Management Plan (NEMP)
- Until it is proven to be effective and economically feasible using PFAS-free alternatives, the ongoing sale and use of C6-PFAS foams may be necessary for uses for which no suitable and less hazardous alternatives are available (replacement chemicals should be less toxic, not persistent, degradable, and not bioaccumulative).
- Entities currently selling or using any PFAS foams are encouraged to develop a strategy outlining current uses, and how and when they will transition away from these chemicals.

PFAS regulatory position in European Union (EU)

These are included because European decisions could influence the direction of future regulatory changes in Australia.

Legacy C8-PFAS firefighting foams have been banned from use since 2020 across EU.
European regulations are leading the world currently, with a soon to be legislated 'PFAS Restriction in Firefighting Foams 'regulation, which passed a vote by all 27 member States in May 2025.

The European Commission has committed to phasing out all PFAS under its *Chemicals Strategy for Sustainability*, which allows their use only where they are proven to be irreplaceable and essential to society.

EU PFHxA (C6) Restriction legislation (Sept. 2024)

This legislation addressed priority sectors, ahead of the broad PFAS firefighting foam restriction legislation, to define specific timelines for more rapid action. C6-PFAS foams are to cease use (at levels above 25ppb PFHxA, its salts and 1,000ppb for all PFHxA related substances) for the following

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applications:

Sector	From:
Municipal Fire Brigades (*except response to Seveso III sites*)	**April 2026**
Firefighter training and system testing	**April 2026**
Civil Aviation	**October 2029**

EU PFAS (C6) in firefighting foams restriction regulation

This covers all other sectors in restriction legislation for firefighting foams containing C6-PFAS, expected to enter into force (EIF) during 2026. Extended periods for transition to PFAS-free foam alternatives (F3s) are expected to be granted for more challenging sectors, recognising current F3 limitations in providing equivalent functionality, particularly under severe fire situations. This is relevant to volatile fuels like gasoline, deep seated fires like storage tanks, seawater use and dry chemical compatibility, non-aspirated devices, strong wind effects, space constraints and cold winter performance, as extensive evidence presented to European Chemicals Agency (ECHA) has confirmed.

In such sectors C6-PFAS foams are expected to be usable for Class B flammable liquid fires, with the following transition periods:

Sector	Extension period
Refineries, Bulk Storage & Chemical Plants (Seveso III sites under Directive 2012/18/EU)	**10 years**
Offshore installations	**10 years**
Marine (existing ships) & Navy vessels	**10 years**
New civil ship builds	5 years
Municipal Fire Brigades (responding to Seveso III sites only)	**10 years**
Launch facilities for Space industry	10 years
Defence	5 years
General industry	**5 years**
Portable extinguishers (placed on market/sale) *AR-foam extinguishers*	12 months *18 months*
Existing Portable PFAS extinguishers (use)	until 31 Dec. 2030

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C6-PFAS are permitted for emergency firefighting use provided they meet EU regulation 2017/1000 confirming unintentional trace contaminant level is below 25ppb for PFOA, its salts and below 1,000ppb for all PFOA related substances, including precursors.

Public consultations during 2023 informed ECHA's Scientific Committees for Risk Assessment (RAC) and Socio-Economic Analysis (SEAC) to assess the proposed restriction options, which were suggested in some sectors as being too short. SEAC recognised:

> *"there is a concern that the transition times proposed by the Dossier Submitter might not be sufficient to ensure the development, full testing and adoption of alternatives suitable for the most challenging types of fires. Given the potential very high impacts of even a single catastrophic fire on human health and the environment, the proportionality of the proposal is uncertain if risks of such catastrophic fires are not kept as low as they are currently. SEAC recommends in this context to adopt a no-regret strategy; that is, a restriction option that remains justifiable whether catastrophic fires take place or not."*

Following an endorsing May 2025 vote of the 27 EU Member States, the European Commission is finalising legislation on these restrictions and final conditions/exemptions expected.

EU Unintended Trace Contaminant (UTC) PFAS Levels

Research in Europe has found that despite rigorous efforts during clean-out of foam systems there are likely to be trace residues of C8-PFAS in systems where C8-foams have previously been used, and a 'rebound' effect is being found where PFAS previously bound to surfaces in contact with concentrated C8- and C6-foams, will continue releasing traces into the replacement foam over time, even after thorough clean-out procedures. This can occur whether C8-foam is replaced by high purity C6-foams or alternative PFAS-free/Fluorine Free Foams (F3s).

Accordingly, European legislation was revised in May 2025 to confirm acceptable unintended trace contaminant (UTC) limits in firefighting foams for PFOA and its salts at 1mg/kg (ppm) and sum of PFOA related substances at 10mg/kg (ppm), following system clean-out for transition to PFAS-free or Fluorine Free Foams (F3).

PFOS UTC remains at 25µg/kg (ppb) for PFOS and its salts, 1mg/kg (ppm) for sum PFOS related substances, while 2023 UTC limits for PFHxS in firefighting foam mixtures required the sum of PFHxS, its salts and any PFHxS-related substances to be equal or less than 0.1mg/kg (100ppb).

This EU regulation covers all firefighting foams, including F3 transitions after clean-out.

Conclusions

Replacing existing legacy C8- foams requires:

- **Either - a PFAS-free or Fluorine Free Foam (F3) alternative, which requires a design review** of your existing foam systems to maintain adequate and equivalent functionality to ensure life safety is not being unintentionally compromised. This is likely to include increased application rates (especially on volatile fuels eg. light crude, gasoline alcohols etc), changes to proportioning systems (as F3s are generally more viscous than AFFFs),

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aspirated delivery devices to deliver foam more gently onto the hazard, as well as thorough clean-out of existing systems to meet unintentional trace contaminant levels for specific C8-PFAS (PFOS, PFOA, PFHxS) and total PFAS residue requirements.

- **Or - a more environmentally benign C6-PFAS AFFF, which has equivalent fire approval**s, is suitable for seawater use, non-aspirated applications to combat windy conditions and low winter temperatures often experienced in winter, particularly in offshore operations around southern States.

There is time to consider the implications of any F3 transition in Australia (outside QLD and SA).

Space to review site needs, conduct a full cost-benefit analysis to ensure it makes business sense for your facility to transition now.

Alternatively consider a delay, potentially several years down the track when alternative PFAS-free foams should have developed further. By then, F3s should probably be more effective and reliable, especially regarding volatile fuels like gasoline, deep-seated fires like storage tanks, improved fire performance with seawater, winter temperature reliability, reduced application rates for confined spaces and weight restrictions and non-aspirated applications to combat wind. All factors of importance for high hazard sectors including offshore and existing marine shipping and Naval vessels.

Please see also the guidance article **“Key Considerations Needed when Transitioning to Fluorine Free Foams (F3s)”**, which may help avoid some common pitfalls.

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