



# Technical Advisory Note

Changing to Fluorine Free or C6 Foam:  
Pre-engineered Vehicle Foam Water Spray Systems,  
Portable and Wheeled Foam Fire Extinguishers

Version 1

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**FIRE PROTECTION ASSOCIATION AUSTRALIA**

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# Changing to Fluorine Free or C6 Foam: Pre-engineered Vehicle Foam Water Spray Systems, Portable and Wheeled Foam Extinguishers

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## 1.0 Purpose statement

Environmental restrictions imposed by legislation or policy in some Australian states is forcing end users and suppliers to increasingly consider use of fluorine free or C6 foam in applications where existing fluorinated foams, which are no longer considered environmentally acceptable, have been traditionally used.

The purpose of this Technical Advisory Note is to provide advice to those considering changing the type of firefighting foam used in existing pre-engineered vehicle foam water spray systems or portable or wheeled foam fire extinguishers to a fluorine free or C6 firefighting foam.

For more information on the issues surrounding the use and selection of firefighting foams see Information Bulletin IB-06, *Selection and use of firefighting foams* in the Technical Documents section of the FPA Australia website: [www.fpaa.com.au](http://www.fpaa.com.au).

## 2.0 Audience

This Technical Advisory Note is intended for:

- (i) FPA Australia members.
- (ii) Users of firefighting foams, including:
  - a. owners of vehicles protected by pre-engineered vehicle foam water spray systems; and
  - b. owners of facilities, vehicles or equipment protected by portable or wheeled foam fire extinguishers.
- (iii) Other stakeholders involved in the selection and use of firefighting foam, including manufacturers, suppliers, installers and servicers of pre-engineered vehicle foam water spray systems or portable or wheeled foam fire extinguishers.

## 3.0 Introduction

Recent changes to the regulatory landscape related to firefighting foams is forcing foam users and suppliers to re-evaluate the type of foam they use. South Australia has introduced legislation that restricts the use of firefighting foams containing fluorine, due to environmental contamination concerns. Queensland also has restrictions in place for the use of fluorinated foams, requiring any fluorinated foam used (and its resulting effluent) to be completely contained and disposed of as a regulated waste. Fluorinated firefighting foams have historically provided important performance characteristics that can be difficult to replicate with fluorine free foams. Whilst there are a wide range of fluorine free foams available, they have widely varying levels of performance; some may be suitable for use in certain systems or applications but unsuitable for others.

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As the performance of listed pre-engineered vehicle foam water spray systems and portable foam fire extinguishers is proven through fire testing it is important to highlight some of the main issues which need to be assessed when considering changing the type of foam used in this equipment. The information in this document is also relevant for wheeled foam extinguishers.

## 4.0 Pre-engineered vehicle foam water spray systems

Systems which have been listed to Australian Standard AS 5062 should only use the foam approved as part of the listing and detailed in the listed system manuals. In order to retain system performance, owners wishing to change the type of foam used in existing systems must consult with the original equipment manufacturer to ascertain if a fluorine free or C6 foam alternative is available and if it has been subjected to the test regime specified in AS 5062. Most importantly, owners should seek confirmation that this testing has been verified by a recognised third party listing body, such as a JAS-ANZ accredited certification body or the CSIRO ActivFire Scheme. Owners should also seek clarification as to any hardware changes that may be required to ensure the system is compatible with the fluorine free or C6 foam.

AS 5062-2016 includes a more rigorous testing regime than the 2006 edition. Extra test requirements in the 2016 edition include 30 day solution stability testing and completion of fire testing with solution that was mixed at least 30 days prior to the fire tests being conducted. These extra tests are important as they demonstrate the foam is stable in solution and that firefighting performance is unaffected. Systems listed to AS 5062-2016 are therefore preferred over those listed to the 2006 edition.

For more information, see:

- Clause 5.3 of AS 5062-2006 and Clause 5.6 of AS 5062-2016 for the requirement for pre-engineered vehicle foam water spray systems to be listed.
- Clause 1.4.13 of AS 5062-2006 and Clause 1.4.16 of AS 5062-2016 for the definition of “listed” under these Standards.
- AS 5062-2016, Table D1, Test No. 21 for the test for agent stability.
- AS 5062-2016, Clause E2 for the requirement for solution to be mixed at least 30 days prior to the tests being conducted.



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## 5.0 Portable and Wheeled Foam Fire Extinguishers

The performance of portable and wheeled foam fire extinguishers is tested as follows:

- Portable fire extinguishers are fire tested to the requirements of Australian Standard AS/NZS 1850.
- Wheeled fire extinguishers are also fire tested to the requirements of Australian Standard AS/NZS 1850 but this may be the wheeled fire extinguisher itself or the same extinguishant in a portable extinguisher (see Clauses 1.5 and 3.1.1 of AS 4265).

The outcome of this testing is the extinguisher is given a classification and rating which represents its performance based on the class and size of the fire(s) for which they have been found effective.

For more information on the classification and rating of extinguishers see Information Bulletin IB-13, *Frequently Asked Questions: Portable Fire Extinguishers* found in the Technical Documents section of the FPA Australia website [www.fpaa.com.au](http://www.fpaa.com.au).

Changing the type of foam used in an extinguisher will most likely impact the extinguisher's performance. Therefore, unless the extinguisher manufacturer confirms that a fluorine free or C6 foam has achieved the same classification and rating through testing to AS/NZS 1850 for that specific extinguisher model—and, ideally, this has been independently verified by a JAS-ANZ accredited certification body or the ActivFire Scheme—then fluorine free or C6 foam must not be used.

Where a fluorine free or C6 foam is not available for an existing extinguisher, it may be necessary for owners to consider purchasing a new extinguisher which has been listed with fluorine free or C6 foam (as appropriate to meet the local regulatory requirements).

## 6.0 Insurance

End users should notify insurance providers of the proposed changes in advance of proceeding to ensure the level of insurance cover will remain acceptable.

## 7.0 Summary

When considering changing to a fluorine free or C6 foam for an existing pre-engineered vehicle foam water spray system or portable or wheeled foam fire extinguisher it will often be necessary to modify the system or extinguisher or replace it completely to comply with the relevant standards.

Only the specific foams approved through fire testing by the original equipment manufacturer shall be used in pre-engineered vehicle foam water spray systems or portable or wheeled foam fire extinguishers.

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## 8.0 Disclaimer

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## 9.0 References

1. Australian Standard AS 4265-1995, *Wheeled fire extinguishers*, published by Standards Australia.
2. Australian Standard AS 5062-2006, *Fire protection for mobile and transportable equipment*, published by Standards Australia.
3. Australian Standard AS 5062:2016, *Fire protection for mobile and transportable equipment*, published by Standards Australia.
4. Joint Australian/New Zealand Standard AS/NZS 1850:2009, *Portable fire extinguishers—Classification, rating and performance testing*, published by Standards Australia and Standards New Zealand.
5. Trade Practices Act 1974 – Consumer Protection Notice No. 3 of 2004 – Consumer Product Safety Standard: Portable Fire Extinguishers, dated 12 August 2004, viewed 19 March 2018, <https://www.legislation.gov.au/Details/F2005B01048>.

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