

PFOS Fire Fighting Foams

Use and disposal information

February 2011

The information in this document is intended for sites holding their own stocks of fire fighting foam for Class B fires.

Background

Perfluorooctane sulfonic acid and its derivatives (PFOS) are a large group of man-made fluorinated chemicals. PFOS was used in a wide range of products in the past, including aqueous film forming foams (AFFF). This type of foam is used to fight Class B fires – involving flammable liquids like fuel.

PFOS is now proven to be a Persistent Organic Pollutant (POP) because the PFOS chemical group ($C_8F_{17}SO_2$) is highly persistent, bioaccumulative and toxic. The formulation and use of fire fighting foams containing PFOS present particular risks to the local terrestrial and aquatic environments.

Foams that contained PFOS were stocked for emergency response at operational sites including chemical and petroleum plants, pharmaceuticals manufacturers, vessels, and off-shore drilling platforms. They were also used by some Fire and Rescue Services.

Regulatory requirements.

As of August 2010, the production, supply, use and disposal of PFOS in Europe is controlled by the Persistent Organic Pollutants Regulation (EC) 850/2004 (as amended). Similar to previous marketing and use restrictions, the production and supply of PFOS above 0.001% by weight (10mg/kg) in fire fighting foam is banned. No new stocks can be produced and any existing stocks (purchased before 27th December 2006) can only be used until 27 June 2011. After that date, POPs law requires that all PFOS-containing foam stocks must be managed as waste.

At present there is no lower concentration limit in the EU POPs Regulations – meaning that any material containing any concentration of PFOS should be disposed of or recovered by one of the prescribed methods. The prescribed methods must be carried out in such a way as to ensure that the POP content of the waste is destroyed or irreversibly transformed, ensuring that the remaining waste and releases do not exhibit the characteristics of a POP. For disposal of PFOS-containing foams and firewater, the preferred option is high temperature incineration at 1100+°C.

POP waste disposal should be undertaken *without undue delay*. There is no legal definition of this term in the relevant legislation and, whilst the Environment Agency will assess what constitutes 'without undue delay' on a case-by-case basis, the organisation and cost associated with waste management for POPs means that disposal plans need to be drawn up as soon as practicable.

Environment Agency position

Our position is that PFOS-containing foams should be disposed of as soon as practicable.

Although use of existing stocks is permitted until June 2011, there are possible environmental consequences and cost implications of using such stocks.

- Contaminating groundwater or surface water with firewater that contains PFOS is not permissible. The environmental risks of PFOS are now well documented; its control under the POPs Regulations and the availability of suitable alternative foams means that an emergency discharge defence is unlikely under the Environmental Permitting Regulations (EPR). Any discharge of PFOS to surface water or groundwater may amount to 'causing or knowingly permitting' a discharge activity without the appropriate permit. The Water Resources Act also allows for the recovery of clean-up costs associated with remedying the pollution.
- It is a legal requirement that POP-containing wastes must not be allowed to contaminate other non-POP waste streams. As such, PFOS-contaminated firewater may be problematic and expensive to store prior to its disposal.
- Whilst the cost for disposal of unused product via high temperature incineration might be undesirable; the same disposal requirements apply to all firewater from incidents where PFOS-based foams have been used.

Foams of unknown composition

Any holder of stocks of AFFF of unknown composition should either contact the manufacturer to find out if it contains PFOS, or get a sample analysed. Analysis should be carried out by a laboratory that is accredited for the appropriate test method, namely Liquid Chromatography – Mass Spectroscopy / Mass Spectroscopy (LC – MS/MS).

Accredited laboratories can be found by searching the United Kingdom Accreditation Services website. Search for 'LC MS/MS' and filter the results by selecting the 'Testing Labs' tab.

www.ukas.com/websearch.asp

Further Information

The Environment Agency is the competent authority and enforcing authority for POPs in England and Wales. Offences, penalties and powers are contained in the Persistent Organic Pollutants Regulations 2007.

This document has been prepared by the Chemical Compliance Team. If you have any questions about POPs, please contact us:

- Send an email to chemicalrestrictions@environment-agency.gov.uk; or
- Call **03708 506 506** and ask to speak to the Chemical Compliance Team about 'POPs'.

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