



INNOVFOAM
SEMINAR

7 juli

Fluor in blusschuim,
wat nu?



avis.us@gmail.com

Light Water (1972) Instructional Sales Film

3M

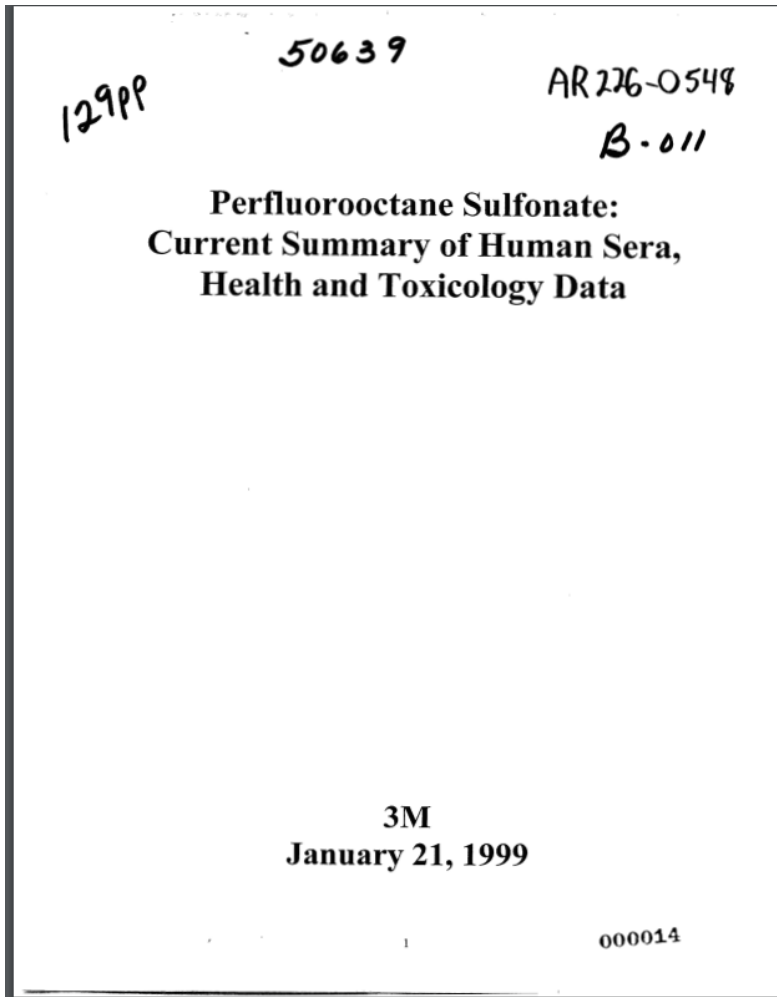
- 50's: Development
 - *Electrochemical fluorination (ECF)*
- 60's: Commercialised
- 1965: US Navy and 3M developed **Aqueous Film-Forming Foam (AFFF)**



DU PONT®

Fluorosurfactants are used in:

- Textile
- Paints and Coatings
- Fire Fighting Foams
- Pizza boxes
- Wind jackets
- **Teflon: > 1954**
- Etc...



January 21, 1999

population. PFOS has a long residence time in the human body. In three retirees, the half-life in human sera ranges from 1100 to 1500 days.

Present: more than 4 years

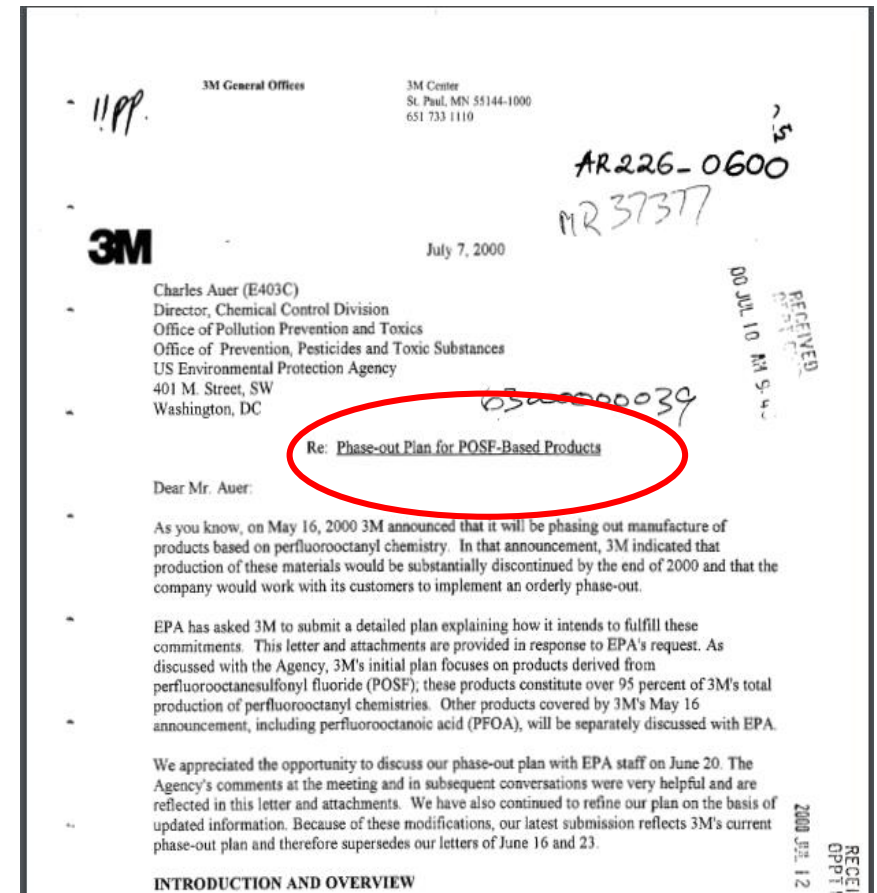
Most used fire fighting foams:

AFFF and AFFF/ATC (AFFF/AR)

- Film forming foam concentrates were based on **PFOS** and **PFOA**
- Amount PFOS substantial higher than PFOA.
- 3M stops production of Fluor chemicals (May 2000).
- Many foam concentrates contain fluor surfactants from 3M

From: **2001**

Fluor surfactants can still contain PFOA or biodegrade to it.

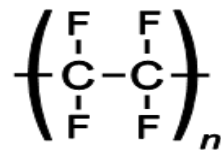
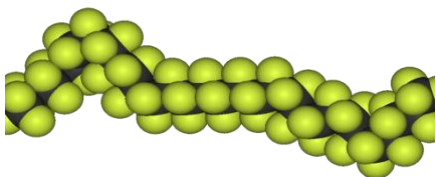


Perfluorochemicals

- The presence of PFOS and PFOA and their negative impact on the environment was and is an engine to develop new types of fire fighting foams

- Medium sized chain length 4-12 Carbon atoms liquids *(These fluor-telomers are used in AFFF's)*
- Short chain length 1-4 Carbon atoms gaseous

- Long chain length (Fluoropolymers) solid



EPA program established in cooperation with **eight major manufacturers**:

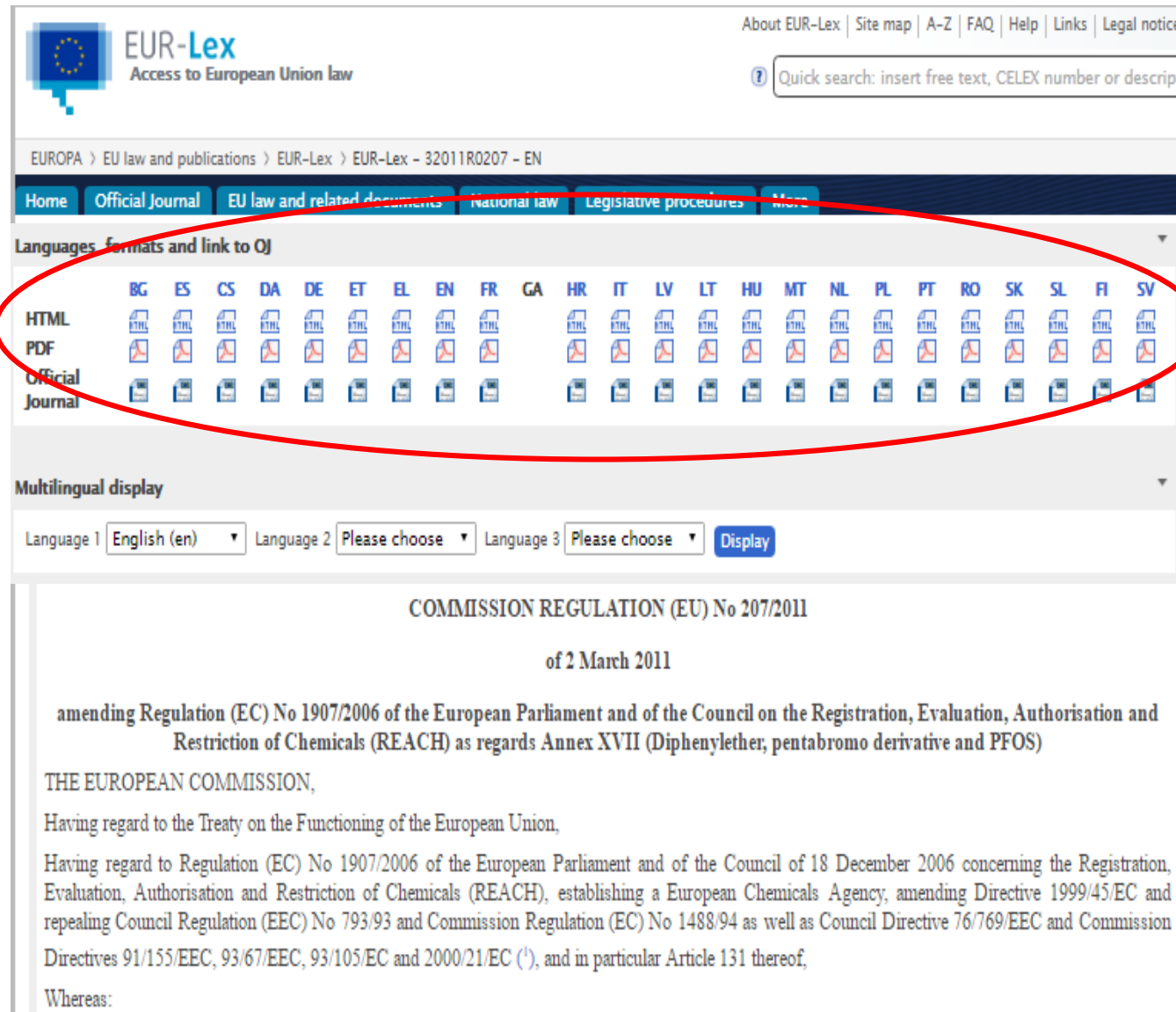
1. Commit to achieve a **95% reduction** in facility emissions of PFOA, precursor chemicals, and related higher homologue chemicals **by 2010** (C8 and higher).
1. Commit to working towards the **elimination (100%)** of these chemicals from emissions and products **by 2015**.

Only option, to go away from *C-8 technology*

To change to *C-6 technology*



2011: EU BAN PFOS



EUR-Lex
Access to European Union law

About EUR-Lex | Site map | A-Z | FAQ | Help | Links | Legal notice

Quick search: insert free text, CELEX number or descriptor

EUROPA > EU law and publications > EUR-Lex > EUR-Lex - 32011R0207 - EN

Home Official Journal EU law and related documents National law Legislative procedures More

Languages, formats and link to OJ

	BG	ES	CS	DA	DE	ET	EL	EN	FR	GA	HR	IT	LV	LT	HU	MT	NL	PL	PT	RO	SK	SL	FI	SV
HTML																								
PDF																								
Official Journal																								

Multilingual display

Language 1 Language 2 Language 3

COMMISSION REGULATION (EU) No 207/2011
of 2 March 2011
amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII (Diphenylether, pentabromo derivative and PFOS)

THE EUROPEAN COMMISSION,

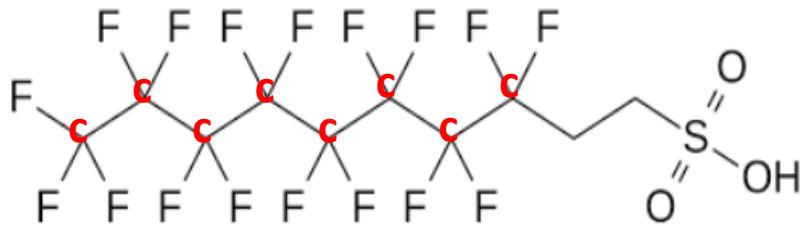
Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (*), and in particular Article 131 thereof,

Whereas:

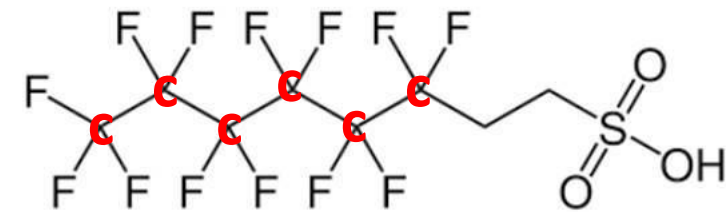
C6/ C8 AFFF en AFFF/ATC

C8 - Technology: 17 fluoratoms (C8:2 FTS)



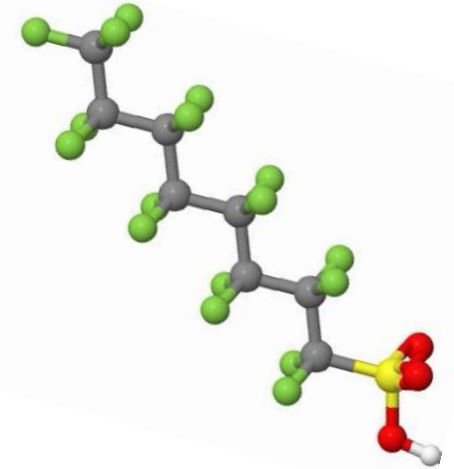
C8 was already a mixture of C6 products

C6 – Technology: 13 fluoratoms (C6:2FTS)



Colour code:

- Carbon, C: black
- Yellow-green: Fluorine, F
- Hydrogen, H: white
- Oxygen, O: red
- Sulfur, S: yellow



- C8 PFOS -> C6 PFHxS
- C8 PFOA -> C6 PFHxA *(present In AFFF)*
- C4 PFBA *(present In AFFF)* =
- C4 PFBS

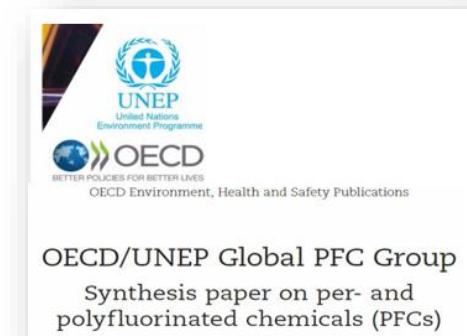
25 % less fluor ➔ **poor performance**

More F-surfactants for same performance ➔ New approvals
(products more expensive)

Why are Fluorine containing foams a Problem ?



- More and more scientists have the suspicion that Fluor-chemicals and other, Organohalogens (CL, BR en I) have a negative influence on the environment



United nation environmental program

- Organo-halogens in Foam concentrates
- WGK (water hazard class)
- BOD (Biological Oxigen Demand) / COD (Chemical Oxigen Demand)



Group Halogen: fluorine, chlorine, bromine, jodide and astatine



- PFC's (Per-Fluoro Carbons) in soil and drinking water

- PFC are persistent and found in the polar bear



Food chain



- Not bio-degradable
- Toxic profile

Contaminated water and food

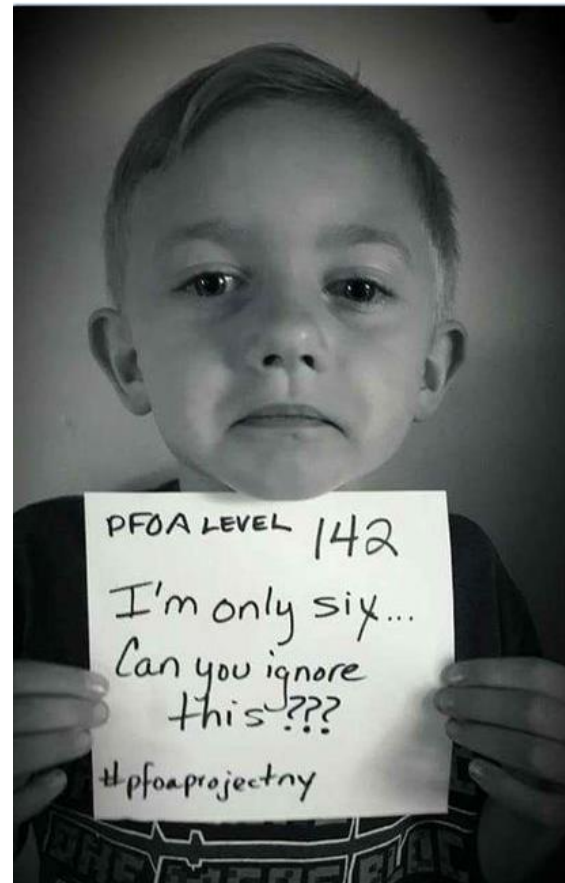
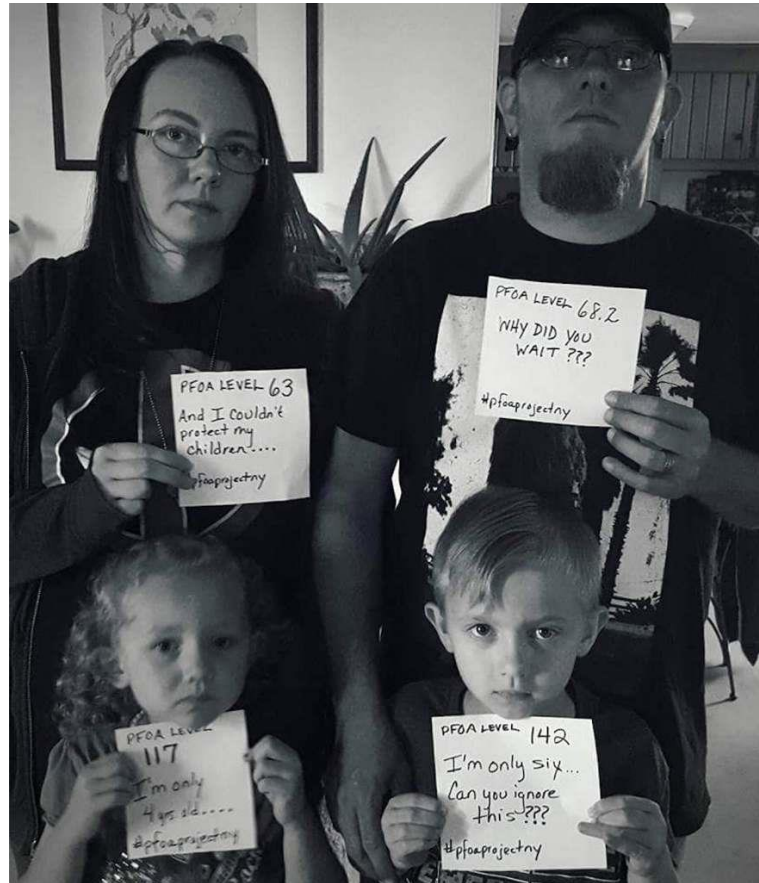


Source: [link](#)



Source: [link](#)

HIGH LEVELS PFC's – found in Children



Source: [link](#)



GERMANY

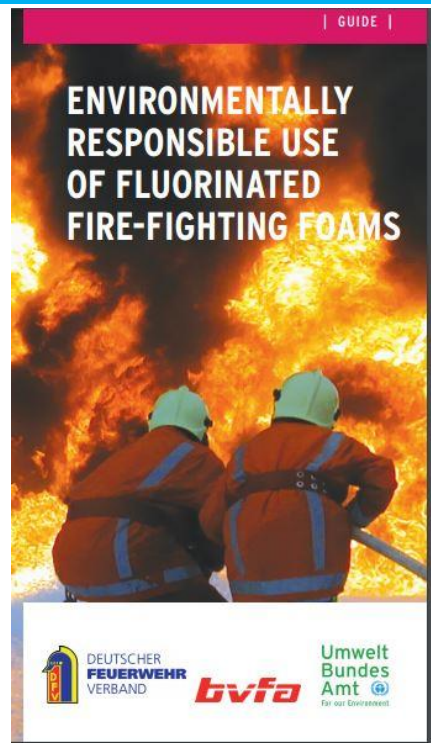
PFCs detected in drinking water consumed by more than 5 million people



- Important players:

- Governments of the 15 states
- UBA
- VDS
- Watertreatment companies





- If there is a suitable replacement for an AFFF or AFFF/ATC we recommend to use such one.
- Collect the effluent in case an AFFF, AFFF/ATC were used.
- Don't use AFFF and AFFF/ATC for training purposes.

Many water treatment companies don't accept waste water which contains fluor-chemicals

Source: [link](#)

2011

Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

Verkenning doelstelling voor herstel verontreiniging met PFOS
Versie mei 2011

RIVM Briefrapport 607083001/2011
J.P.A. Lijzen et al.

2014

Ministerie van Infrastructuur en Milieu

HANDREIKING INVULLING ZORGPLICHT

Omgaan met restanten blusschuim bij calamiteitenoefeningen

Handreiking voor de praktijk

Datum: 18 december 2014
Status: Eindversie

2016

Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

2016

Milieukwaliteitswaarden voor PFOS
Uitwerking van generieke en gebiedsspecifieke waarden voor het gebied rond Schiphol

RIVM Briefrapport 2016-0001
A.M. Wintersen | J.P.A. Lijzen | R. van Herwijnen

2013

.. Verdere doorkijk t.a.v. testen vanuit beeld RWS

Ontwikkelen handreiking

- Minimalisering van de hoeveelheden.
- Liefst testschuim gebruiken (afvoer RWZI en AWZI).
- Hoe omgaan afvalwater met restanten blusschuim?
 - Afvoer via biologische AWZI haalbaar?
 - Vernietiging restanten blusschuim
- Gezamenlijk optrekken bedrijfsleven, brandweer, veiligheidsregio, waterschappen, DCMR, RWS.
- Vertaling naar activiteitenbesluit.

• Toekomst: fluorvrije/kortketige fluorhoudende blusschuimen

15

Rijkswaterstaat
Blusschuim

Source: [link](#)

2014

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

Perfluoralkylzuren in Nederlands oppervlaktewater 2008-2012

2016

Historisch overzicht van openbare informatie over de gezondheidseffecten, classificatie en normstelling voor PFOA en DMAC toegespitst op blootstelling van werknemers

RIVM Briefrapport 2016-0131
M.J. Visser | W. ter Burg | J.J.A. Muller

2017

Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

Betekenis resultaten bloedonderzoek PFOA omwonenden DuPont/Chemours

RIVM Briefrapport 2017-0101
A.G. Oomen | J.M.M. Herremans

NEW EU Water Framework Directive

EUR-Lex
Access to European Union law

Quick search: Insert free text, CELEX number or descriptor

EUROPA > EU law and publications > EUR-Lex > EUR-Lex - 32013L0039 - EN

Document 32013L0039 > Save to My Items > Permanent link > Download notice

Title and reference
Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy Text with EEA relevance
OJ L 226, 24.8.2013, p. 1-17 (BG, ES, CS, DA, DE, ET, EL, EN, FR, HR, IT, LV, LT, HU, MT, NL, PL, PT, RO, SK, SL, FI, SV)
ELI: <http://data.europa.eu/eli/dir/2013/39/oj>

Languages, formats and link to OJ

HTML PDF Official Journal

24.8.2013 EN Official Journal of the European Union L 226/1

DIRECTIVE 2013/39/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 12 August 2013
amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy
(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,
Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,
Having regard to the proposal from the European Commission,
After transmission of the draft legislative act to the national parliaments,
Having regard to the opinion of the European Economic and Social Committee (1),
Having regard to the opinion of the Committee of the Regions (2),
Acting in accordance with the ordinary legislative procedure (3),
Whereas:

ENVIRONMENT

Commission > Environment > Water > Water pollution > Chemical status >

About us Policies Funding Legal compliance New

Priority substances under the Water Framework Directive

- **Introduction**
- **Proposal for a Directive amending the WFD and EQSD (COM(2011)876)**
- **Directive 2008/105/EC on Environmental Quality Standards**
- **Decision 2455/2001/EC on a First list of priority substances**
- **Priority Substances supporting information and documentation**

Table 5.2: EQS of the European Commission for PFOS and its derivatives

The new EU Directive 2013/39/EC entered into force on 9 September 2013, and must be transposed into Member State legislation by 14 November 2015. The new EQS in the directive should be taken into account during the establishment of supplementary monitoring programmes during implementation of the Water Framework Directive. The 'programmes of measures' have to be submitted to the European Commission by the 22 December 2018. Based on the aim of achieving good surface water chemical status, in theory the EQS of the newly identified priority substances have to be met by 22 December 2027.

EQS = Environmental Quality Standards

VdS SCHADENVERHÜTUNG

Ausblick/ Expectations

PFT steht unter Beobachtung und es kommt zu einem PFT Verbot

PFT (Perfluorierte Tenside)		
PFOS (PerFluorOctylSulfonat)	PFOA (PerFluorOctanoicAcid)	...



Es kommt zu einem generellen Verbot der Anwendung von PFT

They expect a general ban of  the use of PFC.

Kunden müssen auf (nahezu) PFT freie Schäume umsteigen



Nicht möglich, da bisher noch keine gleichwertigen Alternativen für AFFF-Schäume zur Verfügung stehen
Betroffen sind die Feuerwehren sowie die Betreiber von Feuerlöschanlagen



Oberlandesgericht Karlsruhe

Justiz in Baden-Württemberg

The City of
Baden-Baden is
held responsible
for the Baden-
Baden fire
brigade's use of
environmentally
damaging
firefighting foam


The hearing before the Court of Appeal (Oberlandesgericht) in Karlsruhe concerned the question of who should pay for the cleanup of the environmental damage caused by the firefighting foam. In the first instance, the town of Baden-Baden had already been ordered to pay, but had appealed. This first judgment has now been confirmed however by the Court of Appeal.

The City of Baden-Baden must now accept liability for the environmental damage caused by the PFC (perfluorated compounds) chemicals in the soil and groundwater, says the Court of Appeal. An appeal was denied. The resulting environmental damage amounts to around **1.8** million euros.

Version: Jan 21, 2017, 10:15 p.m.



2012: The Krefeld Fire

Bezirksregierung Köln 

Bezirksregierung Köln, 50608 Köln

An die
Feuer- und Rettungsstellen
im Regierungsbezirk Köln

- per email -

Überörtliche Hilfe zur Unterstützung beim Großbrand in Krefeld

Sehr geehrte Damen und Herren,
Im Rahmen der überörtlichen Hilfe gem. § 25 FSHG, fordert die Stadt Krefeld landesweite Unterstützung, insbesondere in Form von Schaumlöschmitteln, an.

Ich fordere Sie auf, jegliche Anforderung die an Sie oder an eine Werkfeuerwehr Ihres Zuständigkeitsbereiches gestellt wird, per Sofortmeldung an den Meldekopf der Bezirksregierung Köln zu senden.

Sofern sich eine Werkfeuerwehr in Ihrem Zuständigkeitsbereich befindet, leiten Sie bitte diese Rundverfügung weiter.

Ich erlaube mir den Hinweis, dass keine PFT haltigen Schaummittel in den Einsatz gebracht werden dürfen.

Im Auftrag
gez. Sandra Tünker-Nothofer
(Rufbereitschaft 22)

Datum: 25.09.2012
Seite 1 von 1

Aktenzeichen:
22_RB22_GroßbrandKrefeld

Auskunft erteilt:
Fr.S.Tünker-Nothofer

sandra.tuenker@brik.nrw.de
Zimmer: H 22
Telefon: (0221) 147 - 3887
Telefax: (0221) 147 - 3105

Zaughausstraße 2-10,
50687 Köln

DB bis Köln Hbf,
U-Bahn 3,4,5,16,18
bis Appellhofplatz

Besuchereingang (Hauptflur):
Zaughausstr. 0

Telefonische Sprechzeiten:
mo. - do.: 8:30 - 16:00 Uhr

Besuchertag:
donnerstags: 8:30-16:00 Uhr
(weitere Termine nach Vereinbarung)

Landeskasse Düsseldorf:
Hälsa
BLZ 300 800 00,
Kontonummer 005 00

IBAN:
DE3430050000000096560
BIC: WELADED3333

Hauptleitz:
Zaughausstr. 2-10, 50687 Köln
Telefon: (0221) 147 - 0
Fax: (0221) 147 - 3105

post@brik.nrw.de
www.bezreg-koeln.nrw.de



Sehr geehrte Damen und Herren,
Im Rahmen der überörtlichen Hilfe gem. § 25 FSHG, fordert die Stadt Krefeld landesweite Unterstützung, insbesondere in Form von Schaumlöschmitteln, an.
We claim your foam concentrate

Datum: 25.09.2012
Seite 1 von 1

Ich erlaube mir den Hinweis, dass keine PFT haltigen Schaummittel in den Einsatz gebracht werden dürfen.
No PFC containing foam will be allowed to use.....



WHAT CAN PFASs DO TO HUMANS ?



SOLBERG

2015: How A Toxic Chemical Changed Bucky Bailey's Life



Business — PhillyDeals

DuPont, Chemours agree to split \$900M+ costs in Teflon cancer cases (Updates)

Updated: FEBRUARY 13, 2017 — 7:04 PM EST

The settlement follows decades of Teflon production, followed by more decades of litigation. It "arises from a 2001 class-action lawsuit involving DuPont's contamination of the drinking water supplies" serving 70,000 people in Ohio and West Virginia with PFOA, lawyers for the plaintiffs said in a statement.

Under a 2004 settlement of that lawsuit, DuPont agreed to pay an additional \$350 million for local water systems, blood and other health testing, and medical monitoring.

The lawsuits stem from exposure of workers and neighbors of the plant in Ohio and West Virginia to perfluorooctanoic acid (known as PFOA and C8), which DuPont formerly used in making the popular low-friction material Teflon.

MARCH 27, 2017

Class action lawsuits on behalf of 130,000 in Bucks, Montco merge, seek medical testing **2017**

3M

v.
3M Company; Tyco Fire Products LP, successor-in-interest to The Ansul Company; Buckeye Fire Protection Company; Chemguard; and National Foam, Inc..

JURISDICTION AND VENUE

29. Jurisdiction is proper in this Court pursuant to the Class Action Fairness Act, 28 U.S.C. § 1332(d), because members of the proposed Plaintiff classes are citizens of states different from at least some of Defendants' home states, and the aggregate amount in controversy exceeds \$5,000,000, exclusive of interest and costs.

2017-6-19

\$1.4M from Budget to hold polluters responsible for firefighting foam pollution - The Queensland Cabinet and Ministerial Directory

19/06/2017



Media release

Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef
The Honourable Steven Miles

\$1.4M from Budget to hold polluters responsible for firefighting foam pollution

The Palaszczuk Government will hold polluters responsible for investigating and managing contamination caused by toxic firefighting foam.

Environment Minister Steven Miles said an extra \$1.4 million in the 2017-18 State Budget has been committed to strengthen the management of historical firefighting foam pollution.

"Queensland is adamant that firefighting foams containing highly persistent organic pollutants—including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) implicated in the contamination of the Oakey Defence base—need to be phased out," Mr Miles said.

"This new funding will assist the State's environmental regulator in targeting areas at environmental risk.

"We will require that any existing stocks of foams containing PFOS and PFOA that present a risk are withdrawn from service at commercial and industrial premises, and similar products phased out and replaced, as soon as practicable with more sustainable alternatives.

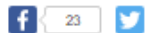
Eerste uitslagen PFOA-bloedtest gemeente binnen

29 april 2017

SLIEDRECHT – Een aantal inwoners heeft de uitslag van de PFOA-bloedtest binnen. De test deden zij nadat de gemeente de **motie Bloedproef** had aangenomen en inwoners zich konden melden voor een test. **Niet iedereen** mocht **meedoen** na aanmelding.

Ruim 800 mensen hadden zich aangemeld voor de bloedtest, die de gemeente Sliedrecht vergoedt. Tot half april konden de mensen die een brief kregen zich laten testen. (Foto Sliedrecht24)

“Ik heb vandaag de uitslag van de bloedtest ontvangen: 3.8 ug/L. Ik heb tien jaar in de Blijenburghsweer gewoond en ben daar nu bijna twintig jaar weg. Deze straat viel in de lichtblauwe cirkel rondom DuPont. PFOA is dus nog steeds meetbaar, zij het in een lage dosering. Het gehalte PFOA is dus in de loop van zo’n twintig jaar gedaald tot het thans nog meetbare getal van 3.8. Dan mag je ook aannemen dat het twintig jaar geleden aanmerkelijk hoger is geweest”, schrijft een inwoner aan Sliedrecht24. Verwacht wordt dat meerdere mensen de uitslag de komende dagen ontvangen.



23

Nieuws 7 Reacties, Geef een reactie

First blood results



Dutch Blood Testing Takes DuPont Teflon Safety Scare to Europe

by Elco Van Groningen, Tiffany Kary, and Jack Kaskey
11 april 2016 06:00 CEST

- Health ministry deepens study into risks of Teflon ingredient
- Investigation comes as U.S. battle on chemical goes to trial

The links between C-8 and health risks were well documented in the U.S. study that relied on blood tests on 70,000 people. Funded by DuPont, it was part of a unique settlement that Stanford University law professor Robert Rabin said could help plaintiffs and regulators make a case in the Netherlands or elsewhere.

it also agreed it wouldn't contest the findings. After seven years of studying close to 70,000 exposed people, the panel found a probable link between C-8 and six diseases, including kidney cancer, testicular cancer and ulcerative colitis.

<https://www.bloomberg.com/news/articles/2016-04-11/dutch-blood-testing-takes-dupont-teflon-safety-scare-to-europe>



Omwonenden chemiebedrijf Chemours eisen 50 miljoen aan compensatie

Circa vijfhonderd gedupeerde omwonenden eisen van het Dordtse chemiebedrijf Chemours/DuPont 50 miljoen euro als compensatie voor de jarenlange blootstelling aan giftige stoffen.

10/05/17



Omwonenden Chemours krijgen bloedonderzoek na blootstelling giftige stof

Zo'n 450 mensen die in de buurt van de voormalige Dupont-fabriek in Dordrecht wonen krijgen een uitnodiging voor een bloedonderzoek.

15/08/16



'Dordtse fabriek Chemours stoot kankerverwekkende stof uit'

De Dordtse teflonfabriek Chemours, beter bekend als DuPont, stoot een kankerverwekkende stof uit over de buurt. Volgens toxicologen bedreigt de chemische stof de gezondheid van werknemers en omwonenden.

20/07/16

Brandweer bezorgd over gebruik giftig blusschuim

Brandweermensen reageren bezorgd op het nieuws dat zij al jaren giftig blusschuim gebruiken. Over de gevolgen voor hun gezondheid is weinig bekend. In het buitenland is ernstige milieuvervuiling ontstaan.

Peter Winterman 24-05-17, 06:39



Deze krant onthulde gisteren dat de Nederlandse brandweer al jaren blusschuim gebruikt [met de giftige stof C8](#). Deze stof - bekend van het gifschandaal bij chemiefabriek DuPont - is mogelijk kankerverwekkend. „Dat dit goedje ook in blusschuim voorkomt, is nieuw voor ons”, zegt Ronald Kraan van brandweervakbond VBV.

De Europese Unie waarschuwt al langere tijd voor de risico's van zogeheten fluorhoudend blusschuim. Zo wordt geadviseerd om het niet te gebruiken bij blusoefeningen. Omdat er een Europees verbod aankomt, zoekt de brandweer naar een alternatief voor het blusmiddel.

Fire Department concerned
due to the use of C8
Fluorochemicals in foam

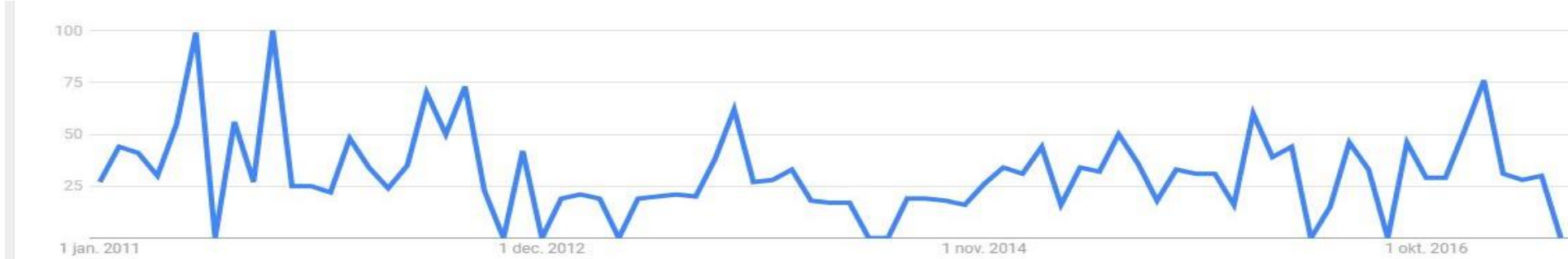


**Dat dit goedje ook in
blusschuim
voorkomt, is nieuw
voor ons**

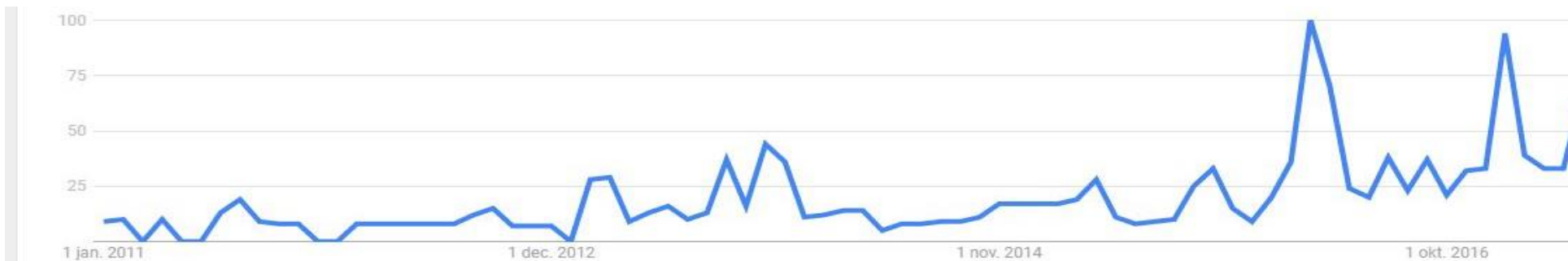
- Ronald Kraan, brandweervakbond VBV

“PFOA & PFOS” trending on Google

PFOS



PFOA



2011

2012

2014

2016

A grayscale microscopic image of a foam structure, showing a network of interconnected, irregular cells. The cells are illuminated from the center, creating a bright, glowing effect that fades towards the edges. The overall appearance is that of a porous, cellular material.

**WHAT ARE FOAM MANUFACTURERS
WORKING ON ?**

Fomtec Is Now Using C6 In All Products

Posted on [January 23, 2015](#) by [Publisher](#)

After years of hard work Fomtec are now all C6. Fomtec has developed formulations from C8 to C6, to secure that we only produce firefighting foam that are completely C6. Many of our C6 products are now approved by agencies and will be manufactured from now on.

-I´m talking for the entire Fomtec when I say that we are very proud to announce that we are all C6. It´s important for us to provide our customers with high-quality foam that responds to our environmental policy, says John-Olav Ottesen CEO Fomtec.


[← Fomtec Is Now Using C6 In All Products](#)

[India – Workers Evacuated From Rig After Gas Leak →](#)

Dr. Sthamer – Hamburg, Europe’s leading independent Fire Fighting Foam manufacture is proud to announce that it has completed its transition to fully C6 based Carbon Chain Fluorosurfactant based AFFF’s and AR-AFFF

Posted on [January 26, 2015](#) by [Publisher](#)

Dr. Sthamer – Hamburg, Europe’s leading independent Fire Fighting Foam manufacture is proud to announce that it has completed its transition from C8 Carbon Chain fluorosurfactant based technology to fully C6 based Carbon Chain Fluorosurfactant based AFFF’s and AR-AFFF in full compliance -to the EPA 2015 requirements and the EU757-2010 POP (Persistent Organic Pollutants) Directive.



Brussels, XXXX
[...](2016) XXXX draft

COMMISSION REGULATION (EU) .../...

of XXX

amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards perfluorooctanoic acid (PFOA), its salts and PFOA-related substances

(Text with EEA relevance)

EN
EN



L 150/14
NL
Publicatieblad van de Europese Unie
14.6.2017

VERORDENING (EU) 2017/1000 VAN DE COMMISSIE

van 13 juni 2017

tot wijziging van bijlage XVII bij Verordening (EG) nr. 1907/2006 van het Europees Parlement en de Raad inzake de registratie en beoordeling van en de autorisatie en beperkingen ten aanzien van chemische stoffen (REACH) wat betreft perfluorooctaanzuur (PFOA), zouten daarvan en aanverwante stoffen

(Voor de EER relevante tekst)

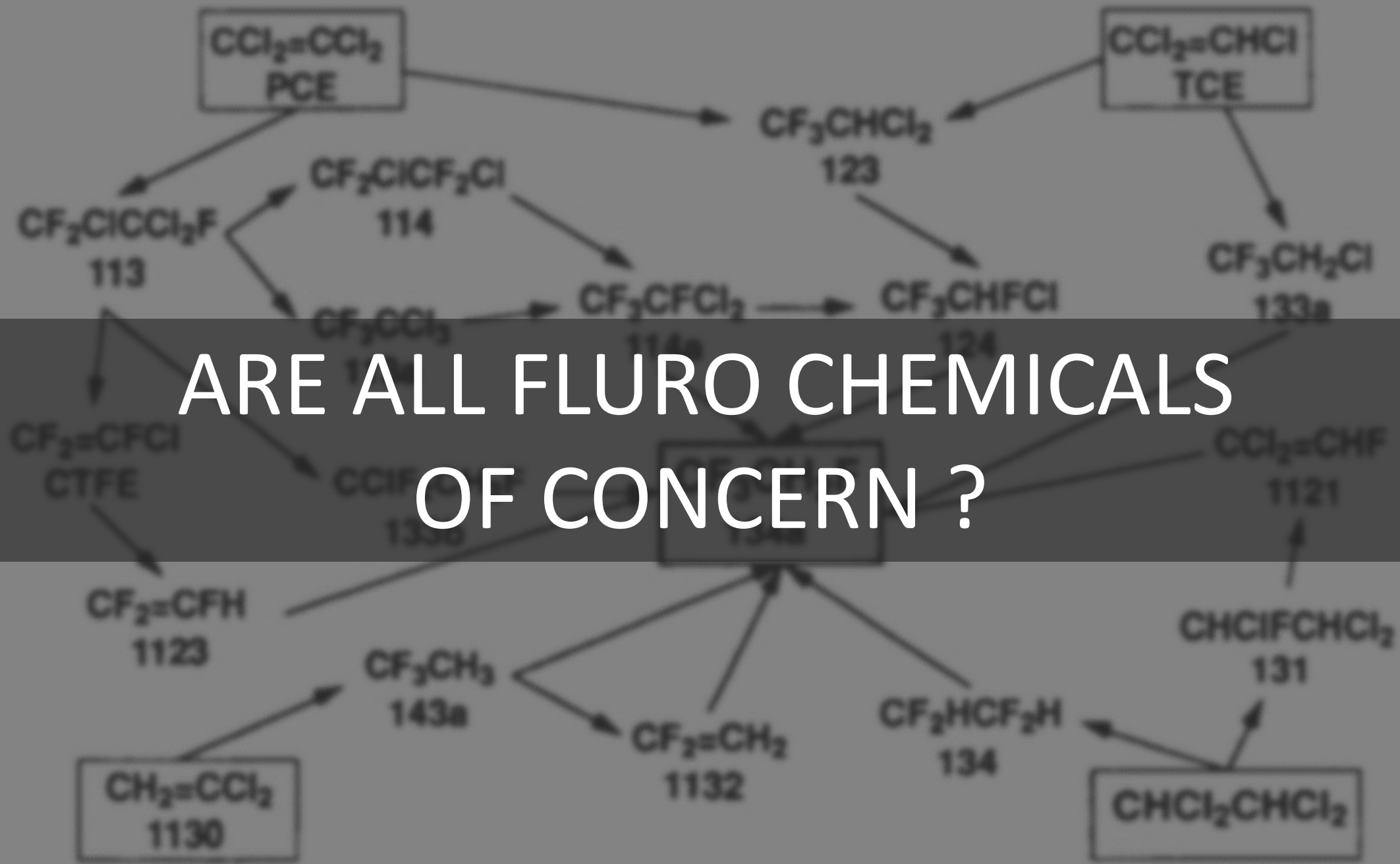
DE EUROPESE COMMISSIE,

Gezien het Verdrag betreffende de werking van de Europese Unie,

Gezien Verordening (EG) nr. 1907/2006 van het Europees Parlement en de Raad van 18 december 2006 inzake de registratie en beoordeling van en de autorisatie en beperkingen ten aanzien van chemische stoffen (REACH), tot oprichting van een Europees Agentschap voor chemische stoffen, houdende wijziging van Richtlijn 1999/45/EG en houdende intrekking van Verordening (EEG) nr. 793/93 van de Raad en Verordening (EG) nr. 1488/94 van de Commissie alsmede Richtlijn 76/769/EEG van de Raad en de Richtlijnen 91/155/EEG, 93/67/EEG, 93/105/EG en 2000/21/EG van de Commissie (1), en met name artikel 68, lid 1,

Overwegende hetgeen volgt:

- (1) Perfluorooctaanzuur („PFOA”), zouten daarvan en aanverwante stoffen (2) hebben bepaalde specifieke kenmerken, zoals een hoge wrijvingsweerstand, dielektrisch vermogen, warmtevastheid en bestandheid tegen chemische stoffen en een lage oppervlakte-energie. Zij worden gebruikt in uiteenlopende toepassingen zoals de productie van fluorpolymeer en fluorelastomeer, als oppervlakteactieve stof in blusschuim en voor het water-, olie-, vet- en/of vuilafstotend maken van textiel en papier.
- (2) Op 14 juni 2013 heeft het Comité lidstaten, als bedoeld in artikel 76, lid 1, onder e), van Verordening (EG) nr. 1907/2006, PFOA aangemerkt als een persistente, bioaccumulerende en toxische stof („PBT”) overeenkomstig artikel 57, onder d), van die verordening. Op 20 juni 2013 is PFOA opgenomen in de lijst van zeer zorgwekkende stoffen („SVHC”) die in aanmerking komen voor opname in bijlage XIV bij Verordening (EG) nr. 1907/2006.
- (3) Op 17 oktober 2014 hebben Duitsland en Noorwegen bij het Europees Agentschap voor chemische stoffen („het Agentschap”) een dossier (3) ingediend overeenkomstig artikel 69, lid 4, van Verordening (EG) nr. 1907/2006 („het bijlage XV-dossier”) waarin zij voorstellen de vervaardiging, het in de handel brengen en het gebruik van PFOA, zouten daarvan en aanverwante stoffen te beperken om de risico's ervan voor de gezondheid van de mens en het milieu weg te nemen. Duitsland en Noorwegen stellen voor de maximumconcentratie van deze stoffen in andere stoffen, mengsels of voorwerpen te beperken tot 2 ppb, met als enige vrijstelling tweedehandsvoorwerpen waarvoor eindgebruik ervan in de Unie voor de datum van toepassing van de beperking kan worden aangetoond.



ARE ALL FLURO CHEMICALS
OF CONCERN ?

ECHA > Information on Chemicals > Substance evaluation - CoRAP

Substance evaluation - CoRAP [Community Rolling Action Plan \(CoRAP\) List of Substances](#)

If a substance is on this list, it means that a Member State **has evaluated or will** evaluate it over the coming years. **The list** is called the Community rolling action plan (CoRAP).

For each substance, the table shows the evaluating Member State, the (planned) year of evaluation and a short description of the concern which led to it being placed on the list.

Substance Name	Year	Member State	Concern	Status
Graphite, and Multi-Wall Carbon Nanotubes (MWCNT), synthetic graphite in tubular shape	2018	Germany	Suspected Carcinogenic Other hazard based concern	Not started
Polyfluoro-5,8,11,14-tetrakis(polyfluoroalkyl)-polyoxaalkane	2017	Germany	Suspected PBT/vPvB Exposure of environment	Ongoing
Reaction mass of (1S,1'R)-2-[1-(3',3'-dimethyl-1'-cyclohexyl)ethoxy]-2-methylpropyl propanoate, (1R,1'R)-2-[1-(3',3'-dimethyl-1'-cyclohexyl)ethoxy]-2-methylpropyl propanoate and 2-methyl-2-[[[(1R*,2R*)-2,6,6-trimethylcycloheptyl]oxy]propyl propanoate, and 2-(1-(3',3'-dimethyl-1'-cyclohexyl)ethoxy)-2-methyl propyl propanoate	2016	Germany	Suspected PBT/vPvB Exposure of environment Wide dispersive use	Conclusion under preparation

ECHA > Addressing Chemicals of Concern > Authorisation > Substances of very high concern identification > Candidate List of Substances of Very High Concern for Authorisation > Candidate List

Perfluorohexane-1-sulphonic acid and its salts (PFHxS)

Candidate List of substances of very high concern for Authorisation

Source: [link](#)

(published in accordance with Article 59(10) of the REACH Regulation)

Substance Name	Year	Member State	Concern	Status
Perfluorononan-1-oic-acid and its sodium and ammonium salts Ammonium salts of perfluorononan-1-oic-acid Perfluorononan-1-oic-acid Sodium salts of perfluorononan-1-oic-acid	17/12/2015	-	Toxic for reproduction (Article 57c) PBT (Article 57 d)	Ongoing



Danish Ministry of the Environment
Environmental Protection Agency

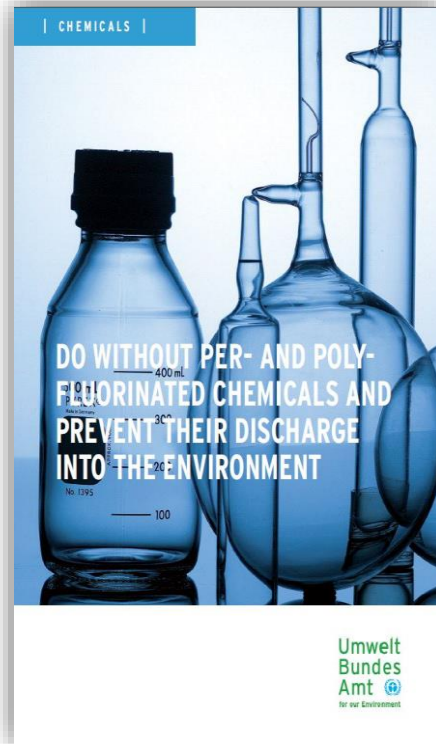
Short-chain Polyfluoroalkyl Substances (PFAS)

A literature review of information on human health effects and environmental fate and effect aspects of short-chain PFAS

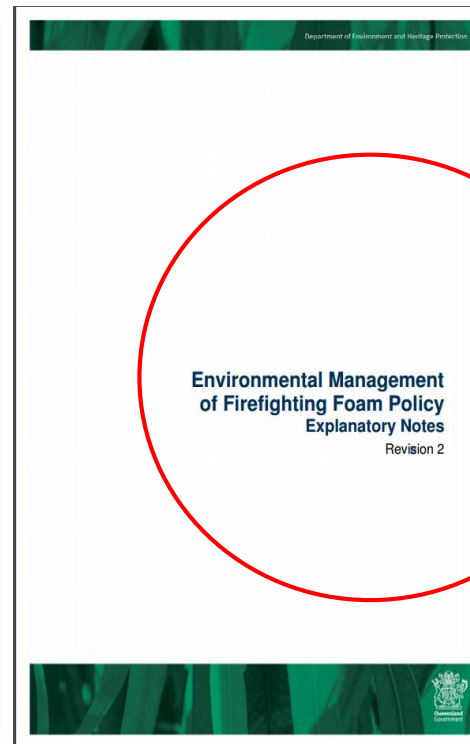
Environmental project No. 1707, 2015



ENVIRONMENTAL SCIENCE FOR THE EUROPEAN REFINING INDUSTRY



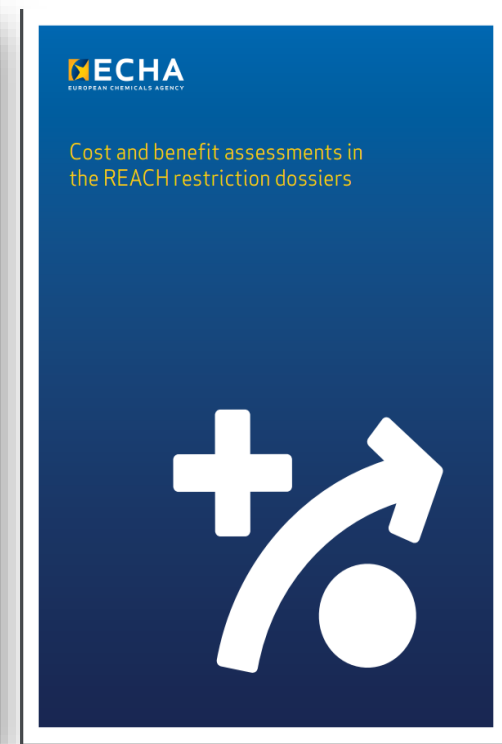
Umweltbundesamt The Federal Environment Agency



Queensland Foam Policy



CROSS COUNTRY PFAS ANALYSIS



Cost and benefit assessments in the REACH restriction dossiers

Main changes under Policy:

- **PFOS legacy foams** must be removed from service as soon as possible.
- **Long-chain legacy fluorinated foams ($\geq C7$)** must be phased-out as soon as practicable within the implementation timeline.
- **Interim containment and control measures** for long-chain legacy foams must be implemented while being phased out.
- **Alternative short-chain C6-PURE foam ($\leq C6 = 99.5\%$ of PFAS)** use is acceptable but all firewater and wastes must be fully contained in impervious bunding or sumps.
- **No discharge of fluorinated organic foams** of any sort is allowable directly to the environment.
- **PFOS plus PFHxS contamination of replacement foam** stocks limit of 10 mg/kg (0.001%) in concentrate.
- **PFOA, PFOA precursors or higher homologues ($\geq C7$)** contamination of replacement foam stocks limit of 50 mg/kg (0.005%) in concentrate.
- **All fluorinated organic wastes** must be disposed of by high-temperature destruction (contaminated soils are dealt with outside of the Policy).
- **Non-persistent 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. E.g. roadside fires and spills, on water incidents in ports or marinas.

*Note that foams described as 'C6-based' are unlikely to be C6 pure and probably contain significant concentrations of PFOA, PFOA precursors or higher homologues.



Fluorine Free Foam Technology



- From 2002 available (Australia)

Contain no: Fluor-telomers (short chains)
Fluor-polymers (long chains)



Technical and R&D Manager

Solberg Asia Pacific Pty Ltd

aug. 2007 – mrt. 2011 • 3 jaar 8 maanden

Omschrijving weergeven ▾



Product Development and Technical Service

3M Australia Pty Ltd

aug. 1989 – jan. 2007 • 17 jaar 6 maanden

3M Australia Pty Ltd

Uitvinders	Ted H. Schaefer
Aanvrager	3M Innovative Properties Company
Citatie exporteren	BiBTeX, EndNote, RefMan
Patentcitaties (6), Niet-patentcitaties (4), Verwijzingen naar dit patent (8), Classificaties (4), Juridische gebeurtenissen (10)	
Externe links: Patentscope , Espacenet	

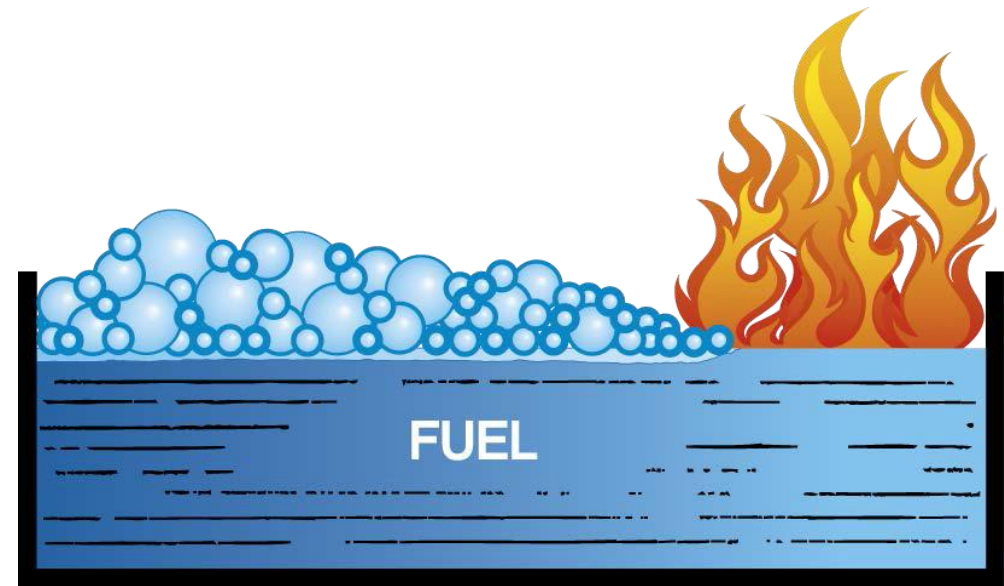
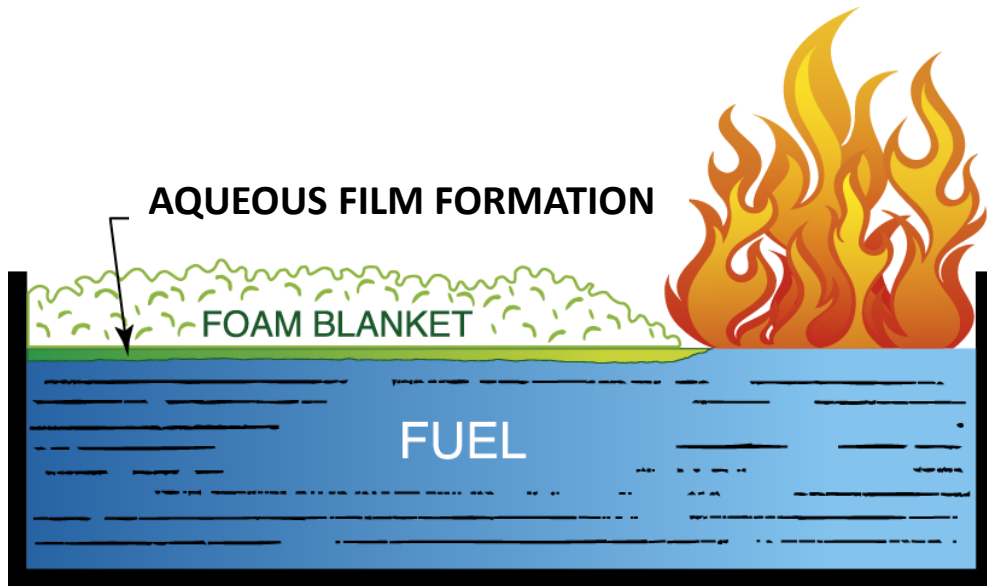
Organo-halogen free:

Best definition to be sure that a recommended product contains no Fluor at all.

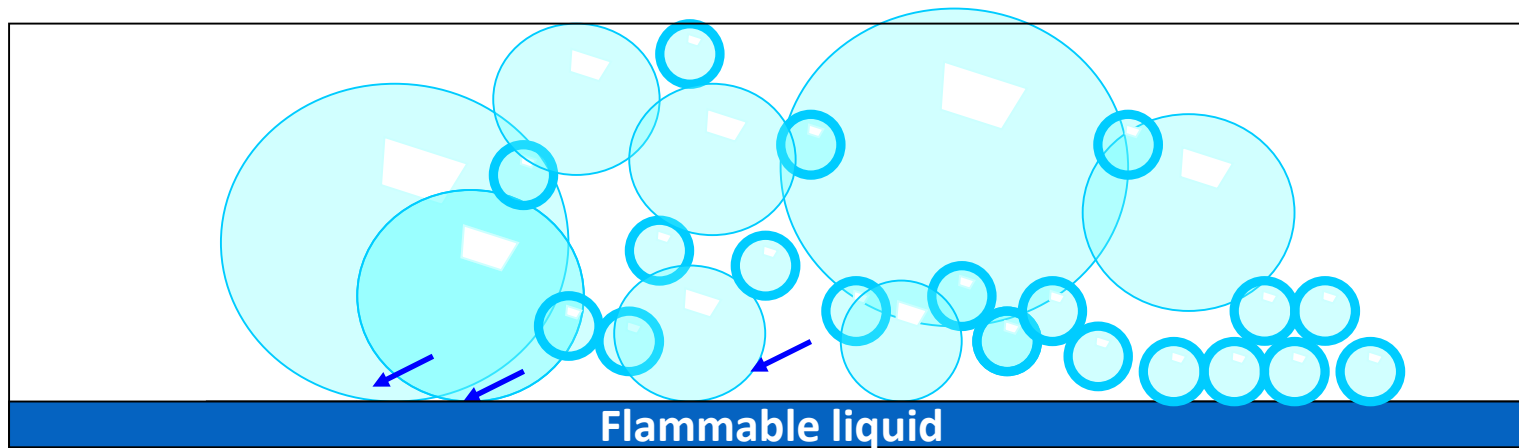
- Pseudoplastic
- Extinguish properties similar to AFFF and AFFF/ATC
- To use with fresh, sea and brackish water
- Powder compatible
- Good sticking properties
- Long draining Time
- Usable with all wellknown equipment and proportioner systems systems



Difference: AFFF VS Fluor Free RF Foam



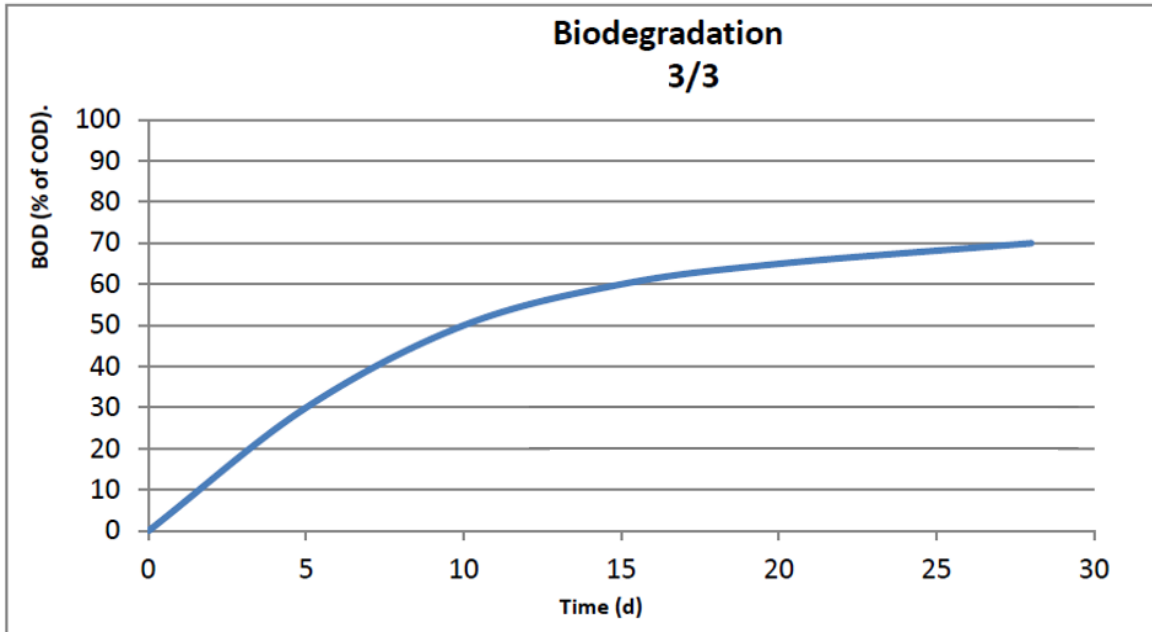
Working fluorine Free RF Foam



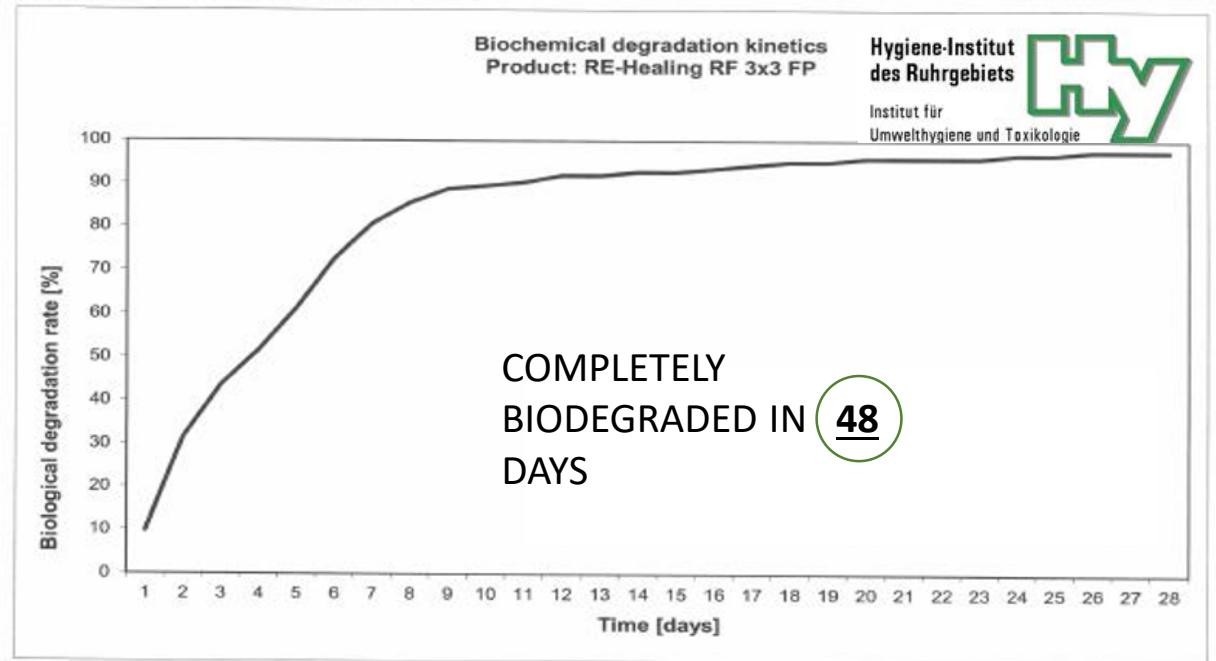
- Easy to expand
- Foam bubbles of different sizes
- *Bigger bubbles* collapse to water film with very short life time but will spread the smaller one's fast over the surface.
- *Smaller bubbles* have stronger walls and long draintime resulting in a very good burnback resistance.

Typical AFFF-ATC 3x3

Time (d)	0	5	10	15	20	28
BOD (% of COD)	0	30	50	60	65	70



Re-Healing RF3x3FP



- No expanded equipment
- Low expanded equipment
- Medium expanded equipment
- High expanded equipment
- Sprinklers
- CAFS



Available Concentrates:

- Hydrocarbons: 1%, 3% & 6%
- Idem + Polar solvents: 3x3% & 3x6%
- Class A + Biofuels: 3%

Low viscosity: 1% & 3% hydrocarbons)

Approvals:

- EN 1568 part 3 and 4
- ICAO- B (3% and 6%)
- ICAO- C , RF3 / RF3x6 (@6%)
- UL | FM
- IMO



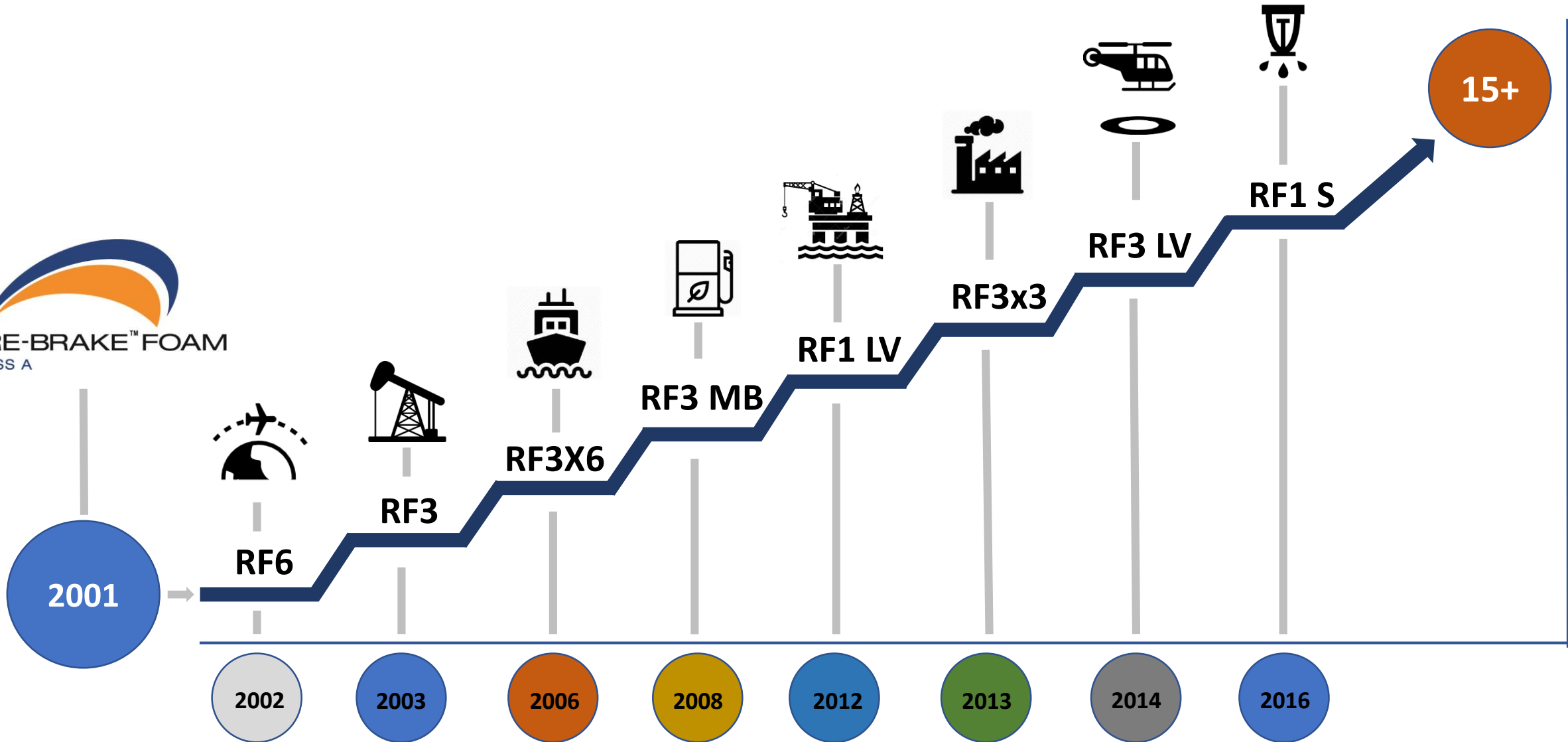


IS
FLUORINE FREE FOAM
A NEW TECHNOLOGY ?

A Relatively New Technology



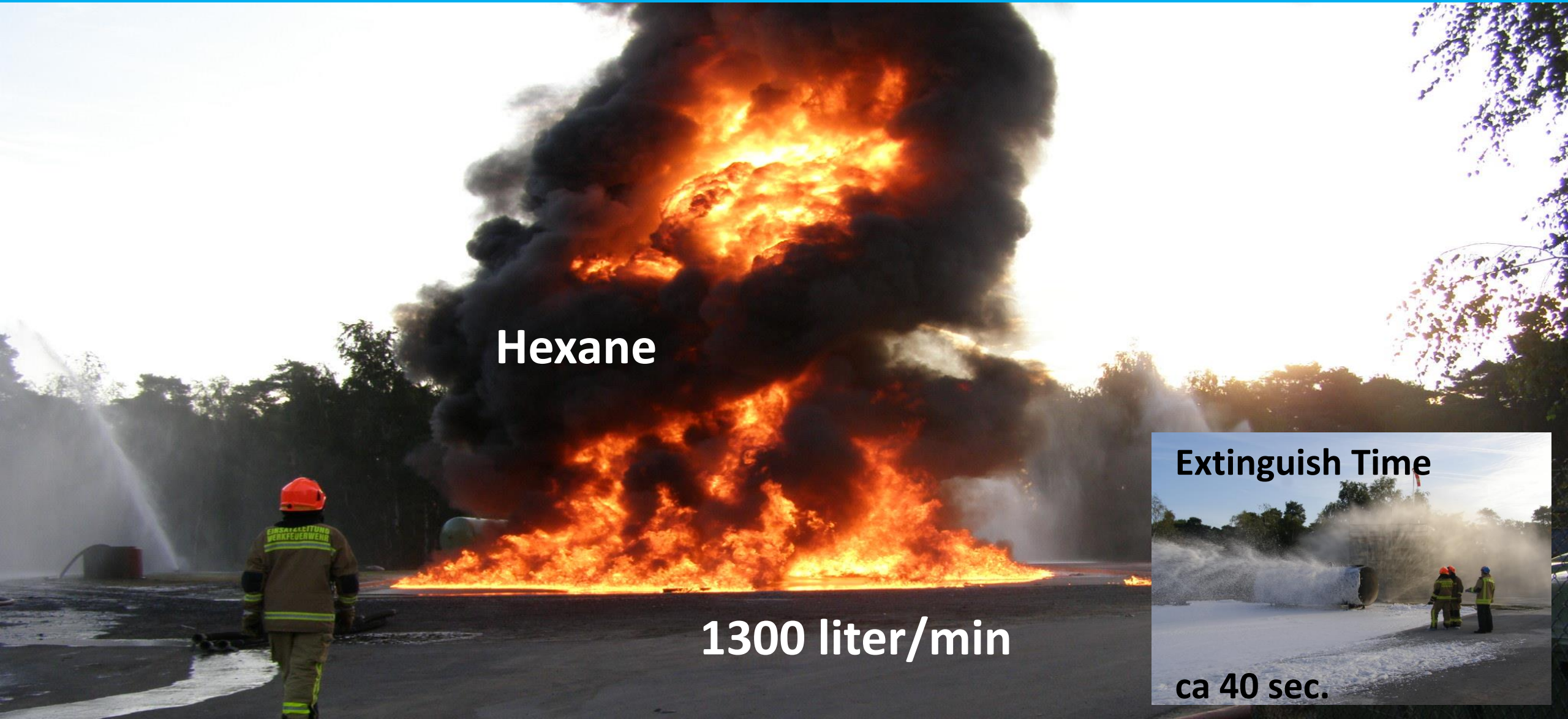
FIRE-BRAKE™ FOAM
CLASS A



A large roll of white foam is the central focus, resting on a gravel surface. In the background, the tail of a blue airplane is visible against a blue sky with scattered white clouds. A dark building is partially visible on the right side. The text is overlaid on a semi-transparent dark grey band across the middle of the image.

WHAT CAN YOU DO WITH
FOAMS THAT DUE NOT FORM A
FILM ?

Test: 330 m²



Hexane

1300 liter/min



Extinguish Time

ca 40 sec.



Case History 01:
Date: October 2003
Location: Japan
Activity: *Emergency Response - Storage Tank Terminal Flammable Liquid Vapor Suppression Operations, Large Volume Foam Delivery Apparatus, +/- 35 x 15 meter - 30 meter Tanks, Sunken Roofs, Earthquake*
RF Series: RF3
Volume: 40,000 liters



Case History 08:
Date: December 2008
Location: Indian Ocean
Activity: *Emergency Response - 6,000 TEU Container Vessel Marine Firefighting Operations, Overhaul and Salvage*
RF Series: RF3x6
Volume: 20,000 liters



Case History 05:
Date: March 2005
Location: Brunei
Activity: *Offshore Platform Fire Protection System*
RF Series: RF3
Volume: 25,000 liters

HAVE FLUORINE FREE FOAMS
PROVEN THEMSELVES ?



Thank you for your attention, Questions ?