



Chemical Compliance Team  
Annual Report 2012–2013

We are the Environment Agency. We protect and improve the environment and make it **a better place** for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

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# Executive summary

The Environment Agency's Chemical Compliance Team (CCT) uses product supply chain intervention to minimise adverse impacts of chemicals on the environment. Our approach is intelligence-led, adopting research and campaign techniques that apply the principles of Better Regulation to minimise the regulatory burden on industry.

Our work has developed in a number of new areas this year, including fluorinated greenhouse gases (F-gases) and ozone-depleting substances (ODSs), and projects for chemical source control and landfill leachate. We also conducted research to inform regulatory impact assessment of any future legislation proposals regarding nanomaterials.

## Influencing and knowledge sharing

We have continued to share our knowledge with UK and international partners through a range of activities. We have coordinated and led the forum enforcement project on polycyclic aromatic hydrocarbons (PAHs) involving 12 EU member states; we produced the final report of this work, which was presented in June 2012 at the European Chemicals Agency (ECHA) REACH Enforcement Forum and was published by ECHA in February 2013.

Our involvement with the Chemical Legislation European Enforcement Network (CLEEN) has enabled us to share information, good practice and outcomes with other EU member states. We presented the findings from our 2012 campaign on hexachlorobenzene (HCB) at the 13th annual CLEEN conference in Lithuania, where we also shared our well-established methods for monitoring and intervention for online retailing. We are now working in partnership with the Health and Safety Executive (HSE) to co-host the next CLEEN conference, which will be held in London for the first time.

## Supporting Water Quality outcomes

The Chemical Source Control Project is a CCT collaboration with Environment and Business, Land and Water Quality, of the Environment Agency. Using chemical supply chain analysis, we are working to identify sources of chemicals that are Priority Substances under the Water Framework Directive (WFD). Substances investigated to date include:

- di(2-ethylhexyl)phthalate (DEHP)
- tributyl tin and its compounds (TBT)
- triclosan.

The findings of this research project will help to identify significant sources of substances that are impacting the chemical status of water bodies, and will be used to develop the second round of River Basin Management Plans (2016–2021).

We have also set up investigative analysis in the form of a Landfill Leachate Project, which is studying the composition of liquid residues from landfill. The results from this analysis will be used as a basis to determine the possible effects that landfill sites may have on local groundwater.

## Delivering F-gas support services

We now operate the national helpdesk and provide business support services for compliance with Fluorinated Greenhouse Gases (F-gas) and Ozone-Depleting Substances (ODS) regulations. We responded to 89 enquiries from the public, companies and trade bodies; we have also raised industry awareness of the legal requirements by delivering presentations via external stakeholder events.

We are proactively addressing non-compliance with the regulations by monitoring online trade and responding to reports. We also provide advice and support to local authority staff as well as our own Environment Agency compliance officers.

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# 1 Core team functions and partnerships

## 1.1 The Chemical Compliance Team

The Chemical Compliance Team (CCT) is part of the National Trading and Regulatory Service (NTRS).

The team is responsible for:

- carrying out campaigns to monitor compliance with chemical restrictions;
- coordinating enforcement for identified non-compliance (liaising with internal staff and external regulators as necessary);
- sharing information and findings with partners to improve the effectiveness of further risk reduction strategies;<sup>1</sup>
- taking proportionate enforcement action on non-compliances notified to the Environment Agency;
- responding to enquiries from industry and other regulatory authorities regarding chemical restrictions within the CCT's regulatory remit;
- developing UK proposals for environment risk management of substances under Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and evaluating proposals put forward by EU member states;<sup>2</sup>
- identifying and understanding the uses and sources of Water Framework Directive (WFD) substances into the water environment, and helping to develop the second round of River Basin Management Plans (RBMPs).

The CCT's regulatory remit covers the following regulations:

- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Enforcement Regulations (2008)<sup>3</sup>
- Persistent Organic Pollutants Regulations (2007)<sup>4</sup>
- Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances) (England and Wales) Regulations (2000)<sup>5</sup>
- Fluorinated Greenhouse Gases Regulations (2009)
- Environmental Protection (Controls on Ozone-Depleting Substances) Regulations (2011).

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<sup>1</sup> Process leading to new restrictions on chemicals that may cause harm to the environment, or to human health via exposure to the environment.

<sup>2</sup> Since September 2011, members of the CCT have been working closely with the Chemical Assessment Unit (CAU) and the Health and Safety Executive (HSE) on risk management proposals.

<sup>3</sup> UK regulations that implement requirements of EU REACH Regulation 2006 (EC) 1907/2006.

<sup>4</sup> UK regulations that implement requirements of EU Persistent Organic Pollutants Regulations 2004 (EC) 850/2004.

<sup>5</sup> These transpose the requirements of 16 September 1996 on the disposal of polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs) (EU Council Directive 96/59/EC) into domestic law.

## 1.2 Partnerships and liaison

The CCT regularly liaises with other Environment Agency departments and UK regulatory bodies on the regulations within our remit. We have developed partnerships with internal and external teams to carry out enforcement and to share information and good practice. An overview of these partnerships is shown in Tables 1.1 and 1.2.

**Table 1.1 Internal partnerships and liaisons**

<b>Partner</b>	<b>CCT activity</b>	<b>Purpose</b>
Chemical Assessment Unit (CAU)	Chemical-specific information obtained.	Scientific support (for campaign research and delivery).
	Campaign findings reported.	Information to support future chemical restriction strategy.
	Working in partnership on risk management proposals.	To develop UK risk management proposals for substances under REACH, and to evaluate proposals submitted by other EU member states.
Pollution Prevention and Control (PPC) officers	Cascade of campaign information and guidance to PPC staff.	Officer awareness when conducting site-based regulation and customer liaison/service.
	Direct contact with PPC staff for any site targeted during a campaign.	Officer awareness when conducting site-based regulation and customer liaison/service.
	Cascade of polychlorinated biphenyl (PCB) information.	Officer awareness of PCBs when conducting routine site inspections.
Chemicals WFD programme (cross-functional)	Scope agreement of Chemical Source Control Project, delivery of project.	Provision of evidence to support WFD compliance and RBMPs.
National Laboratory Service (NLS)	Advice sought about analytical methods.  Expertise about external contract management sought.  Provision of samples to the NLS as part of the nonylphenol ethoxylates (NPEs) monitoring programme.	Gathering of evidence to support WFD compliance and RBMPs.



<b>Partner</b>	<b>CCT activity</b>	<b>Purpose</b>
Environment and Business	<p>Assistance requested to cascade F-gas guidance to external members of the Environment Agency's food and drink sector.</p> <p>Advice and assistance sought from sector leads for textiles, metals and chemicals.</p>	<p>Information and advice shared, ensuring accuracy.</p> <p>Effective, targeted engagement with PPC inspectors and industry.</p>
Legal teams	Advice sought about information notices and legal interpretation of legislation.	<p>New use of information notices to gather evidence to support WFD compliance and RBMPs.</p> <p>To ensure correct and consistent legal interpretation of enforcement restrictions and bans under relevant regulations.</p>
	Collaboration to add F-gas offence details to the Offence Response Options.	Joint review of F-gas Regulations to ensure legal integrity of Offence Response Options.
Corporate Information Services (CIS)	Worked in partnership to develop and improve the PCB database and to transform the database ready for use via citrix.	To create a more methodical approach to data entry and processing to allow for more secure back-up of the system via Capgemini's servers.
	Advice sought about information notices.	New use of information notices to gather evidence to support WFD compliance and RBMPs.
Operations Technical Services	Assistance requested to cascade F-gas guidance internally to PPC officers in the Environment Agency's food and drink sector.	Information and advice shared, ensuring accuracy.
Environment Management	Support and competence assessment requested for warrant renewal.	To ensure warrants are renewed.

**Table 1.2 External partnerships and liaisons**

<b>Partner</b>	<b>CCT activity</b>	<b>Purpose</b>
Department for Environment, Food and Rural Affairs (Defra)	Advice sought regarding chemical restrictions.	Clarification of scope of regulations.
	Gathering information on the effects, uses and alternatives of specific chemicals.	Researching and sharing information relevant to EU regulatory proposals. Input to the review of the UK POPs <sup>6</sup> National Implementation Plan.
	Collaboration to enforce F-gas regulations in England.	Sharing information and best practice, and maximising environmental outcome.
Health and Safety Executive (HSE)	Liaised with the HSE during the nanotechnology project.	Share information and identify targets for research.
	Shared regulatory information on internet products containing tributyl tin, and placing on the market of POPs (lindane).	Investigation of potential non-compliances.
	Support for the REACH Competent Authority (HSE).	Coordinated enforcement of REACH.
	Gathering of information about products registered under biocidal products legislation.	Background research for WFD compliance and planning.
Other UK environmental regulatory bodies (Scottish Environment Protection Agency, Northern Ireland Environment Agency, Natural Resources Wales)	Sharing information and procedures.	Development of REACH enforcement approach in Scotland, Northern Ireland and Wales.
	Support provided for launch of campaigns, including advice about guidance notes and targeting.	Ensuring a consistent enforcement approach across the UK.
	Requesting monitoring data for nonylphenol (NP) and NPEs.	Background data for our monitoring programme.

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<sup>6</sup> Persistent organic pollutants.

<b>Partner</b>	<b>CCT activity</b>	<b>Purpose</b>
Trade press	Cascade of information to trade magazines/journals such as <i>Fireworks</i> .	Cascade of information to a wider audience.
Nanotechnology Knowledge Transfer Network (NanoKTN)	Provided support and advice on issues faced during the nanotechnology research project.	Defining a nanomaterial.
	Cascaded information about the nanotechnology project to the network's members via an article on the website.	To raise awareness of the research and to encourage industry to participate.
Internet auction site	Regulatory action.	Removal of non-compliant products from sale.
SKM Enviros	Handover of F-gas support helpdesk and awareness campaigns.	Business continuity maintained for customers.
Refcom	Collaboration to raise awareness of F-gas regulations and prevent non-compliance.	Sharing information and advice, maximising awareness of stakeholders.
Food and Drink Federation (FDF)	Collaboration to raise awareness of F-gas regulations and prevent non-compliance.	Sharing information and advice, maximising awareness of stakeholders.
Capgemini	Worked in partnership to develop and improve the PCB database and to transform the database ready for use via citrix.	To create a more methodical approach to data entry and processing to allow for more secure back-up of the system via Capgemini's servers.
Trade associations	Advice sought about the use of chemicals in everyday products (textiles, personal care products, cosmetics, cleaning products, wood).	To gather evidence to support WFD compliance and RBMPs.
UK Water Industry Research (UKWIR)	Data and information shared on the UKWIR Chemicals Investigation Programme.	Enabling the 21 water and sewerage undertakers in UKWIR to carry out joint research.
Analytical laboratories	Advice sought about analytical methods.  Provision of samples as part of the NPE monitoring programme.	To gather evidence to support WFD compliance and RBMPs.

Partner	CCT activity	Purpose
	Carried out the chemical analysis of tributyl tin in textiles.	Achieve objectives and ensure accurate results.
	Carried out the chemical analysis of NP/NPE in personal care products and textiles.	Achieve objectives and ensure accurate results.
External consultants	Data and information requested about water monitoring.	To gather evidence to support WFD compliance and RBMPs.

### 1.3 International partnerships and liaison

The CCT has been contacted by a number of international regulatory agencies, who have been interested in our approach to raising awareness, monitoring and enforcing chemical restrictions. Many of these agencies have used our experience and knowledge to adopt similar approaches. An overview of our recent international relationships is shown in Table 1.3.

**Table 1.3 International partnerships and liaisons**

Organisation	City or country	Subject
European Chemicals Agency (ECHA)	Helsinki (Finland) and Rome (Italy)	Attended the ECHA REACH Forum twice this year for the Risk Management Expert (RiME) Group and a workshop on production of restriction dossiers.
	Helsinki (Finland)	Attended the REACH Enforcement Forum to present the findings and final report for the EU polycyclic aromatic hydrocarbons (PAH) enforcement project.
	12 EU member states	Liaised directly with authorities from 12 member states on the PAH project.
Danish Environmental Protection Agency Authorities from EU member states	Denmark	Information sharing as they have published research regarding NPE in textiles.
Swedish Chemicals Agency (KEMI)	Sweden	Working in partnership with CAU, our NPE in textiles research has been provided to Sweden as evidence for the dossier to restrict NPE in imported textiles.

# 2 Methodology

## 2.1 Established methodology

The approach of the Chemical Compliance Team (CCT) to enforcement adopts the principles of Better Regulation – seeking to minimise undue burden and expense on industry, focusing regulatory effort on high-risk areas and pursuing proportionate enforcement action where required. The campaign format is flexible and can be adapted to suit the requirements of each enforcement campaign. In 2012–2013 we have continued to adapt and improve our campaign approach in order to increase efficiency and to reduce the burden on industry. A general overview of our campaign format is shown in Appendix 1.

## 2.2 New approaches and work streams

In 2012–2013 the CCT has adopted and/or developed a number of existing and new work streams, and approaches to working.

### **Water Framework Directive**

The CCT has taken on two new temporary staff to carry out a two-year project in conjunction with the Environment Agency's Environment and Business Directorate, Land and Water Quality, and UK Water Industry Research's Chemicals Investigation Programme (CIP).

### **Fluorinated Greenhouse Gases and Ozone-Depleting Substances**

The CCT is now regulating the Fluorinated Greenhouse Gases Regulations (2009) and the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations (2011) on behalf of Defra.

### **Risk management work**

Since September 2011, members of the CCT have been working closely with the Chemical Assessment Unit (CAU) and the Health and Safety Executive (HSE) on risk management proposals. See Appendix 16 for highlights of our work.

### **Review of Hazardous Waste Intelligence Database**

During 2012–2013 we continued to make use of the Hazardous Waste Intelligence Database (HWID) to identify disposals of polychlorinated biphenyl (PCB) oil or PCB Contaminated Equipment that had not been recorded on the PCB database.

### **Economic benefits of controlling pollution at source**

The CCT has recently begun work to outline the costs and benefits associated with controlling pollution at source. The purpose of this work is to show how controlling pollution at source could provide a cost-effective solution to reduce chemicals in the environment, in turn helping to meet Water Framework Directive requirements (Environmental Quality Standards).

Our initial aim has been to place an economic value on the health benefits associated with reducing chemicals in the environment via control at source.

# 3 Outcomes and successes

## 3.1 Enforcement and non-enforcement

The work of the Chemical Compliance Team (CCT) in the last year has led to many positive outcomes and successes. These are divided into non-enforcement and enforcement activities, as shown in Tables 3.1 and 3.2.

**Table 3.1 Non-enforcement outcomes and new work streams**

<b>CCT activity</b>	<b>Purpose</b>	<b>Outcome/result</b>
Attendance at the ECHA Risk Management Expert (RiME) Group in Helsinki	Better efficiencies.	Workshop on production of restriction dossiers, sharing experience and discussing how to make the process more efficient.
Attendance at the CLEEN conference in Lithuania	Present our successful work on hexachlorobenzene (HCB) in fireworks to representatives from enforcing authorities for persistent organic pollutants (POPs) across Europe.	The conference helped us to develop new contacts in other member states who are conducting similar work.  Participation in a European-wide enforcement campaign (EuroPOP) concerning HCB in fireworks.  The 2013 CLEEN conference will be held in London.
Liaison with Explosives Industry Group (EIG)	To overcome issues with the POPs regulations of HCB in fireworks.	Through this work we have developed a good relationship with the EIG. This is beneficial as they are a good source of information. They can help us to inform and influence industry.
Article written for the trade magazine <i>Fireworks</i>	Raise awareness of HCB in fireworks and encourage users to make sure that they are compliant with POPs regulations.	Communicate to a wider audience.
81 textile products analysed for organotin compounds	To determine if imported textiles are a source of organotin compounds.	The results found no organotin compounds in the textile products sampled.

<b>CCT activity</b>	<b>Purpose</b>	<b>Outcome/result</b>
Working relationships with polychlorinated biphenyl (PCB) registrants and stakeholders	Improve the quality and consistence of PCB registrations.	Eight new registrants have registered 143 pieces of PCB.
Research into nanotechnology on behalf of Defra	To investigate the main users and producers of nanomaterials in the UK.	Developed contacts with industries involved in nanotechnology.
Further development of the prioritisation tool	Help steer our decisions in prioritising the highest risk chemicals for our campaigns.	Provided factual evidence to support our decisions.
Polybrominated diphenyl ethers (PBDEs)	To determine if the UK's stringent fire regulations have increased the use of fire retardant treatment solutions of PBDEs.	104 flame-retardant solutions were investigated for PBDE content in excess of 0.001% by weight.  The results of this campaign suggest that aftermarket fire retardant solutions available in the UK are free from PBDEs.
F-gases and ozone-depleting substances	Investigate potential non-compliance.  Provide guidance and advice to stakeholders via the F-gas support helpdesk.	89 enquiries answered.  25 companies investigated.  Removal of 220 kg of banned R-22 gas from the UK marketplace (equivalent to 286,000 kg CO <sub>2</sub> ).
Textiles analysis for nonylphenol and nonylphenol ethoxylates (NP/NPEs)	28 pairs of underpants were found to contain NP/NPEs and 99% of NP/NPEs washes out after two washes at 40°C.	Publishing of the NP/NPEs textiles report.

During 2012–2013 the CCT carried out a number of campaigns to assess compliance with the regulations within our remit. A summary of our enforcement activities and their outcomes/results is shown in Table 3.2. Further details of our 2012–2013 campaigns and updates of campaigns that began in 2011–2012 are shown in Appendices 2–19.



**Table 3.2 Enforcement outcomes and successes**

<b>Chemical</b>	<b>Product/ sector</b>	<b>Driver</b>	<b>Outcome/result</b>
NPE	Wastewater	WFD	NPE of samples analysed of each of ten sewage treatment works – evaluation of the results is still ongoing.
NPE Follow-up to 2011– 2012 campaign	Personal care products	REACH	A total of 2858 x 250 ml bottles were removed from the market and sent for disposal. This equates to 715 litres of illegal product.
Tributyl tin and its compounds	Textiles	REACH	81 textile products were analysed.  The results found no organotin compounds in the textile products sampled.
Lindane	Human health insecticides	POPs	Warning letter issued following investigation into placing on the market of lindane and lindane-containing products, as detailed in the CCT Annual Enforcement Report 2011/2012.  HSE follow-up: Warning letter relating to prior information consent.
HCB in fireworks	Fireworks	POPs	19 fireworks were purchased from 12 companies for analysis.  12 information notices were served.  All 12 responded. All responses were compliant.  Analysis has found four fireworks to be non-compliant and enforcement action is ongoing.
PCB	Supermarkets	PCBs	Information notices were sent to 13 companies.  Only one held a current PCB registration.  One company registered items of potentially PCB Contaminated Equipment.  One company located an unidentifiable capacitor and has planned for proper disposal.

<b>Chemical</b>	<b>Product/ sector</b>	<b>Driver</b>	<b>Outcome/result</b>
PCB	Dairy and bakery	PCBs	16 notices were served.  One company registered items of potentially PCB Contaminated Equipment.
F-gases	Various	F-gases	8 companies were found not to hold a necessary F-gas company certificate.  11 bottles of virgin, and unlabelled, reclaimed HCFC-22 gas have been removed from internet auction site.  23 helpdesk reports of potentially non-compliant activity have been investigated.  10 companies have been instructed to amend websites that promote illegal installation by unqualified persons.

# 4 Future chemical compliance activity

Over the past year we have again proved that our approach to monitoring and enforcing chemical restrictions has been successful. Our approach offers an excellent balance between reducing the regulatory burden on compliant companies and ensuring that proportionate enforcement action can be taken. In the future we will continue to develop the tools, methods and partnerships we have in place to further enhance our ability to monitor and enforce chemical restrictions.

In 2013–2014 we will continue to monitor and enforce chemical restrictions under our regulatory remit of REACH, Persistent Organic Pollutants (POPs), Fluorinated Greenhouse Gases (F-gases) and Ozone-Depleting Substances (ODSs), and Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances). We are considering campaigns to cover:

- hexachlorobenzene (HCB)
- treated timber
- 4,4'-methylenedianiline (MDA)
- flame retardants
- lead compounds
- cadmium in fertilisers
- F-gases and ODSs
  - awareness raising through trade associations
  - supermarket sector
  - HCFC-22 gas phase-out
  - equipment records
  - chemicals industry
  - ensuring full company certificates are in place.

We will also be carrying out the annual polychlorinated biphenyl (PCB) registrations, maintaining the database of POP stockpiles, and dealing with the statutory notifications under the Mercury Export and Data (Enforcement) Regulations (2010).

In addition to these proposed campaigns, in 2013–2014 we will work in partnership with the Chemicals Investigation Programme and Environment and Business, Land and Water Quality, to investigate possible sources of industrial and non-industrial diffuse pollution. This will support the Environment Agency's work to meet Water Framework Directive requirements. Proposed work areas for this research include:

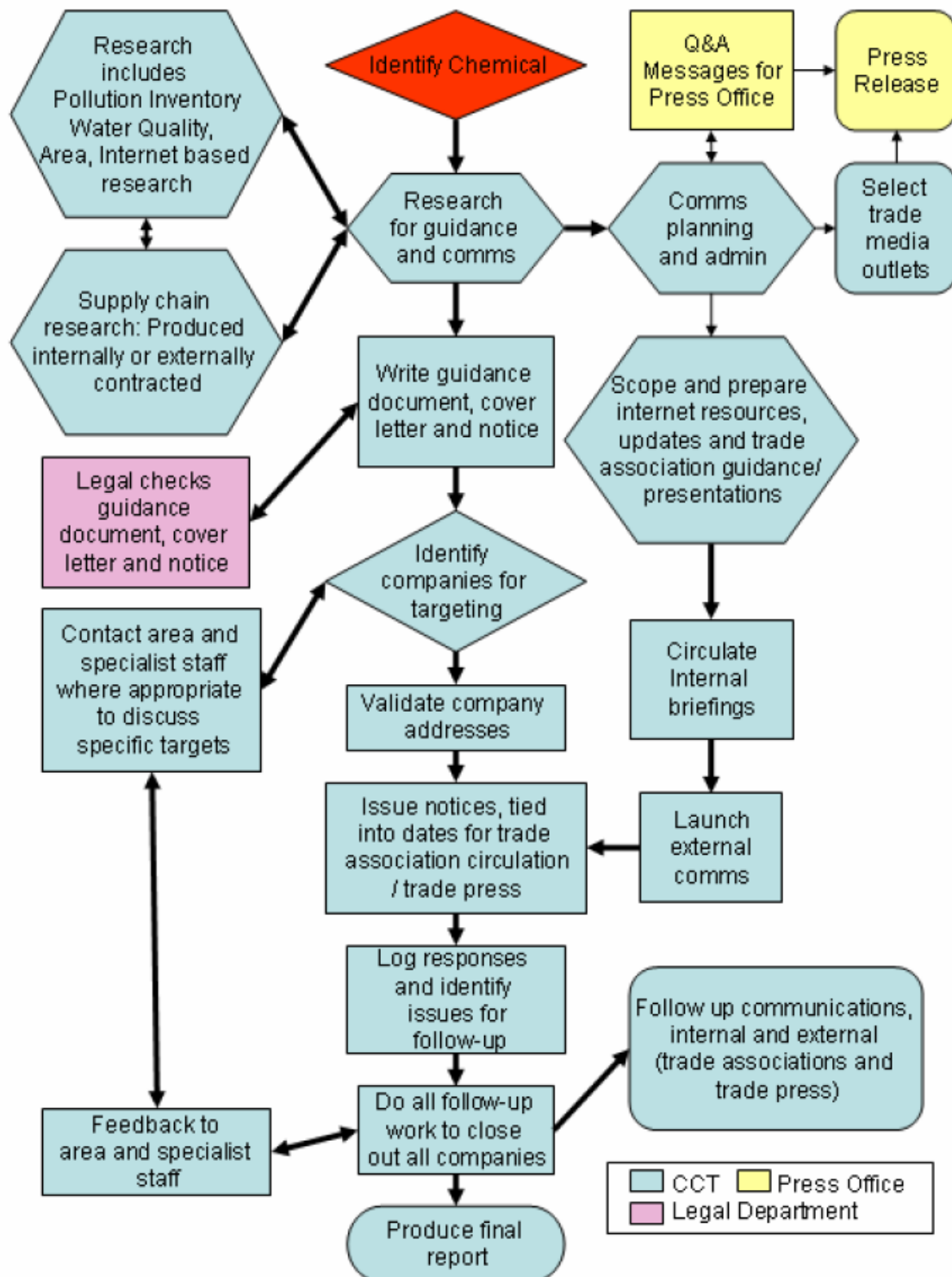
- triclosan
- pentabromodiphenyl ether (pentaBDE)
- nonylphenol and its ethoxylates (NP/NPEs)
- cadmium in fertilisers.

Work for these areas will contribute to the Environment Agency's Corporate Strategy 2010–2015 in the areas of:

- Protecting and improving water, land and air.
- Working with businesses and other organisations to use resources wisely.

# Appendices

## Appendix 1: Basic CCT campaign format



## Appendix 2: Chemical Source Control Project

### Chemicals in our waterways

Chemicals are entering our waterways from a variety of sources such as run-off from agriculture, emissions from factories and detergents washed down the drain. Substances we use in our everyday lives are entering our lakes, rivers and oceans and some of these may have an adverse effect on our aquatic ecosystems.

The Water Framework Directive (WFD) manages chemicals that are of particular concern to the environment and/or human health. Some of these chemicals persist in the environment, where they accumulate up the food chain and pose a risk to health. Effects from exposure to these chemicals include a shortened lifespan, reproductive problems, hormonal changes, and changes in appearance and behaviour in animals, including birds, fish and other aquatic life.

### Chemical Source Control Project

This Chemical Compliance Team (CCT) run project, focuses on chemicals that impact or have the potential to impact on WFD compliance with chemical quality objectives. This is a two-year project that began on 1 April 2012.

Our work will help to develop the second round of River Basin Management Plans, which will be a programme of measures to be implemented during 2016–2021 to meet, as far as practicable, the objectives of the WFD.

A chemical supply chain analysis approach is used to identify sources of chemicals into the water environment.

### Water Framework Directive

The WFD requires EU member states to set out actions to achieve good water status in all waters by 2015. Pollutants presenting a significant risk to or via the aquatic environment are designated at European level as Priority Substances and Priority Hazardous Substances. Additional pollutants of concern are designated as Specific Pollutants and Other Pollutants.

In brief, the requirements of the WFD are to:

- prevent the deterioration of surface and groundwater quality and ensure that existing levels of contamination in biota and sediments do not significantly increase;
- aim to achieve the Environmental Quality Standards (EQSs);
- aim to progressively reduce pollution from Priority Substances;
- aim to cease or phase out emissions, discharges and losses of Priority Hazardous Substances (recognising this may not be possible for substances occurring naturally or through natural processes);
- safeguard protected areas, including designated drinking water protected areas, in accordance with Article 7 of the WFD;
- achieve good chemical status in groundwater, to meet threshold values and reverse upward trends.

## **Project remits 2012–2013**

The Chemical Source Control Project objectives for 2012–2013 were to identify and understand the uses and sources of the following chemicals into UK waterways:

- di(2-ethylhexyl)phthalate (DEHP)
- nonylphenol and its ethoxylates (NP/NPEs)
- polybrominated diphenyl ethers (PBDEs)
- tributyl tin and its compounds (TBT)
- triclosan.



## Appendix 3: Tributyl tin and its compounds research

Tributyl tin (TBT) compounds are Water Framework Directive Priority Hazardous Substances, which persist in the environment and tend to bioaccumulate up the food chain. They are endocrine-disrupting chemicals that are harmful to aquatic organisms, even at low concentrations, and are known to cause sterility and death to shellfish.

Tributyl tin has been primarily used as a biocide in a variety of applications; however, marketing and use restrictions have now prohibited this use. In 2012–2013, the Chemical Compliance Team conducted research to identify potential sources and pathways of TBT into the water environment. Further details are discussed below.

### Textiles

#### *Marketing and use restrictions*

Under Annex XVII of REACH, tri-substituted organotin compounds cannot be placed on the market or used where the concentration in the article or part thereof, is greater than the equivalent of 0.1% by weight of tin.

#### *Background*

TBT has been used in textiles for:

- textile protection (to prevent damage from mould or mildew);
- hygiene (to combat sweat odour).

In recent years, TBT has been found in clothing, mattresses, shoes, canvas, tents, PVC, inks, nets, rubber floor mats, polyurethane foams and sponges.

#### *Textiles analysis*

Eighty-one textile products (cycling shorts, t-shirts, undergarments, socks) were sent for analysis to test for organotin compounds such as TBT. These were chosen from a list of products known to have contained TBT; those selected were at high risk of releasing chemicals into the water environment (i.e. through washing).

The results found no organotin compounds in the textile products sampled.

### Wood preservatives

#### *Regulatory controls*

Since September 2006, wood preservatives containing TBT were no longer approved for use in the EU, as a result of controls applied through the Biocidal Products Directive.

From September 2013, the new Biocidal Products Regulations will make it illegal to import articles that have been treated with a biocide not approved for use in the EU.

## Background

TBT has been used as a fungicide in light organic solvent preservatives (LOSPs), where the solvent acts as a carrier for the preservative, to ensure effective penetration into the wood. LOSP-treated timber is usually only suitable for wood intended for above-ground applications and at least partially protected from the weather. This includes doors, house frames, cladding, outdoor garden furniture, feature fences, and engineered wood products such as laminated posts and beams.

TBT wood preservatives have been used in many countries throughout the world.

## Desktop research

An internet search was conducted to find wood preservatives containing TBT for sale in the UK. No products were found.

Research was then conducted to identify if imported TBT-treated wood could be entering the UK. Seven international trade associations were contacted and the overall opinion was that this is unlikely.

The CCT may conduct further research on chemicals in treated wood in 2013–2014.

## Cleaning products

TBT has been used as the active ingredient in cleaning products such as disinfectants, to destroy micro-organisms. Such products have had many uses including agriculture and hospitals.

Over 280 material safety data sheets were reviewed for cleaning products from nine NHS Hospital Trusts. These included disinfectants, floor cleaners, air fresheners, hand soaps, soaps, surface cleaners, laundry detergents, catering products, window cleaners and automotive products.

None of the products reviewed were found to contain TBT.

## Internet products

An internet search was conducted to find products containing TBT, which were potentially being marketed in the UK. Further details are discussed below:

**Product 1:** A textile preservative and general preservative (marketed under one brand) were found containing TBT (1.06% TBT-oxide and 25% TBT-maleate respectively). The UK distributor was contacted for information on these products, which revealed that they had not been sold in the UK for many years. They were withdrawn from sale in the UK and Europe because they contained TBT.

**Product 2:** Product 2 was manufactured in the USA and distributed by a US-based company. The product contained 93.3% TBT-oxide and was marketed for use as a fungicide, microbicide/microbiostat and antifouling product. The distributor was contacted for information on this product and they indicated that no TBT-oxide was sold to the UK during the period 2006 to 2011. The manufacturer ceased production of all TBT-oxide at the end of 2011. In 2012, the manufacturer sold the organotin business in the USA and Europe. It was bought by another US company and an internet search of their website found no products containing TBT.

**Product 3:** A search found a carpet treatment containing TBT-maleate (0.06%) and the information was passed to the Health and Safety Executive (HSE, who regulate

biocidal products). The HSE contacted the supplier, who responded that they no longer supply the product.

**Product 4:** A coating additive was found containing TBT-benzoate (10–30%) and the information was passed to the HSE. The supplier responded that they no longer supply the product.

**Product 5:** A paint additive was found containing TBT-oleate (2.5–10%) and the information was passed to the HSE. The supplier responded that they were not overtly supplying their product as a biocide; however, as the product contained TBT-oleate (a known biocidal active substance), information was sent to the Spanish CLEEN focal point.

**Product 6:** A search found a disinfectant containing TBT-oxide and the information was passed to the HSE. The product is manufactured by a US-based company and there are no current import or UK sales.

**Product 7:** Product 7 was marketed in the UK as a disinfectant, cleaner and deodoriser, and environmentally friendly product (even though it contained TBT). It was found on the internet being marketed by seven retailers in the UK. Details were passed to the HSE for follow-up. Six retailers (including the UK manufacturer) responded stating that they no longer place this product, or biocidal products formulated using this product, onto the UK market. An appropriate contact is being established for the remaining retailer.

## Appendix 4: Triclosan research

Concerns over triclosan are growing due to suspicions that it is a persistent, bioaccumulative and toxic (PBT) chemical with endocrine-disrupting properties. It has been proposed as a Specific Pollutant under the Water Framework Directive. If triclosan is confirmed as a Specific Pollutant an Environmental Quality Standard will be set. From 2015 we will need to include triclosan in our River Basin Management Plans (RBMPs). Triclosan is also undergoing substance evaluation under REACH to determine if further controls are required.

Research was conducted during 2012–2013 to determine the amount of triclosan entering the water environment now and to try to predict future use. This will help to identify if control measures are needed for the second round of RBMPs (2015–2021).

### Desktop research

Research was conducted to identify the uses of triclosan in the UK. This included internet searches, contact with manufacturers/suppliers and information requests.

Triclosan has been used in a wide variety of products and our findings were classified by the risk of triclosan entering the water environment:

**High risk:** uses where there is a recognised route to the water environment (direct to controlled water or via sewage treatment works) AND the product is intended to enter the drains during normal use. Includes: surgical scrub, washing-up liquid, toothpaste, soap, skin emollient, hand wash, body wash and cleaners.

**Medium risk:** uses where there is a recognised route to the water environment (direct to controlled water or via sewage treatment works) but the product is NOT intended to enter the drains during normal use. Includes: paint, nail solvent, hand cream, deodorant, dental cement/adhesive, antiseptic cream, hand gel and deodoriser.

**Low risk:** uses where there is no recognised route to the water environment (direct to controlled water or via sewage treatment works). Includes: sealant, clinical waste bags, clean-up granules, aerosol cleaners, PVC and epoxy coating.

The majority of triclosan products available on the market today fall within the 'high-risk' product category. The number and type of triclosan products found during desktop research are listed in Table A4.

**Table A4 Triclosan-containing products in order of risk category and number of products identified**

Product type	No. of products identified	Risk category
Hand wash	34	High
Toothpaste	19	High
Body wash	7	High
Skin emollient	5	High
Cleaner	3	High
Hair and body wash	3	High
Facial cleanser	2	High

Product type	No. of products identified	Risk category
Solid soap	2	High
Bathroom wipes	1	High
Intimate wash	1	High
Washing-up liquid	1	High
Surgical scrub	1	High
Hand gel	5	Medium
Antiseptic cream	5	Medium
Deodoriser	2	Medium
Dental cement/adhesive	2	Medium
Deodorant	2	Medium
Paint (water soluble)	2	Medium
Hand cream	1	Medium
Nail solvent	1	Medium
Cleaners (aerosol)	3	Low
Epoxy coating	2	Low
PVC	2	Low
Clean-up granules	2	Low
Clinical waste bags	1	Low
Sealant	1	Low

The majority of triclosan-containing products that are available now are hand wash and toothpaste (these are also in the high-risk category). Further details of each are described below.

### *Hand wash*

Research shows that hand wash is probably the main use of triclosan. According to the UK Cleaning Products Industry Association (UKCPI), 3–5 tonnes of triclosan is used per year in hand washes aimed at the industrial and institutional cleaning sector alone.

Research was conducted to identify triclosan hand wash in supermarket own brands at four of the major supermarkets and none was found. Further research found triclosan hand wash in seven other brands marketed in the UK.

From discussions with manufacturers and suppliers of hand wash and relevant trade associations, it is clear there are three main markets for hand washes:

- Food industry: main market for triclosan/antibacterial-containing hand washes.

- Healthcare industry: small market, World Health Organization states standard soap and alcohol gel is adequate so most organisations are happy to follow this advice and do not use antibacterial hand washes.
- General washroom products: small market, most consumers are happy with standard soap and do not use antibacterial hand wash.

Where triclosan is present in a hand wash it is at <0.3% concentration.

### *Toothpaste*

Triclosan in toothpaste has been clinically proven to treat gingivitis at 0.3% concentration. However, many brands have stopped using triclosan over the last few years due to consumer pressure.

The Cosmetic Products (Safety) Regulations require that all cosmetic ingredients are listed on the packaging.<sup>7</sup> Internet research was conducted to identify toothpastes containing triclosan. Ingredients were assessed for 273 products at four of the major supermarkets/retailers and 4% of the products were found to contain triclosan (all were from the same two brands).

From data on the average person's toothpaste usage and how much triclosan is removed at sewage treatment works, it is estimated that 297 litres of triclosan could have been emitted from sewage treatment works in 2011. This calculation makes a number of assumptions but gives an indication of the amount of triclosan entering the environment from toothpaste.

### **Research conclusions**

Our research found that there appears to be a mix of opinions about the current and future use of triclosan. It is very difficult to determine the current trend in usage as some companies stated that customer pressure had forced them to remove triclosan from their products, while others see triclosan as an important ingredient that is here to stay.

In some key markets where triclosan use has been well known, it appears to be either no longer in use or the marketing literature does not state what antibacterial agent is in the product. The use of triclosan in plastics is an example of this. Triclosan use in plastics was a very high profile use in the 1990s but there is very little information available to suggest it is still in use. More research and partner engagement is planned for the future.

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<sup>7</sup> The regulations require that ingredients above 1% must be listed in descending order. Ingredients below 1% can be listed in any order below the 1%+ ingredients.

## Appendix 5: Nonylphenol and nonylphenol ethoxylates

The marketing and use of nonylphenol (NP) and nonylphenol ethoxylates (NPEs) is restricted under Paragraph 46 Annex XVII of REACH (EC) 1907/2006 as set out below:

46. (a) Nonylphenol  $C_6H_4(OH)C_9H_{19}$   
(b) Nonylphenol ethoxylate  $(C_2H_4O)_n C_{15}H_{24}O$

Shall not be placed on the market or used as a substance or constituent of preparations in concentrations equal to or higher than 0.1% by mass for the following purposes:

- (1) industrial and institutional cleaning, except:
  - controlled closed dry cleaning systems where the washing liquid is recycled or incinerated;
  - cleaning systems with special treatment where the washing liquid is recycled or incinerated;
- (2) domestic cleaning;
- (3) textiles and leather processing, except:
  - processing with no release into waste water;
  - systems with special treatment where the process water is pre-treated to remove the organic fraction completely prior to biological waste water treatment (degreasing of sheepskin);
- (4) emulsifier in agricultural teat dips;
- (5) metal working, except:
  - uses in controlled closed systems where the washing liquid is recycled or incinerated;
- (6) manufacturing of pulp and paper;
- (7) cosmetic products;
- (8) other personal care products, except:
  - spermicides;
- (9) co-formulants in pesticides and biocides.

NP is a Priority Hazardous Substance under the Water Framework Directive (WFD) and EU member states must aim to cease or phase out all emissions, discharges and losses. NPEs break down to form nonylphenol.

### Nonylphenol and human health

Excessive exposure to NP/NPEs may affect the digestive system, eye, kidney, liver, reproductive system, skin, throat and the unborn child.

## Nonylphenol in the environment

Widespread use of NP is a major concern for the water environment, because it is toxic to marine and freshwater species. NP has been shown to cause hormonal changes in fish.

NP/NPEs pose a threat to plants and wildlife on land; plants may be exposed to the chemicals through sewage sludge. Animals may be affected by secondary poisoning (bio-accumulation, bio-concentration and bio-magnification, where high levels of contamination collect over time in the tissues of organisms that have consumed a contaminated food source).

## 2012–2013: Follow-up to 2011–2012 campaign

### *Personal care products*

In 2012 we conducted analysis to determine the presence and concentration of NPEs in personal care products. One product was identified as containing NPEs above 0.1% in breach of the restriction. The product, a hair gel, was found to contain 0.29% NPE, which was also listed as the chemical 'nonoxylol 10' in the ingredient list. An enforcement notice was served on the UK importer of the product to take action to prevent any remaining non-compliant product entering the UK market; this was fully complied with. As a result of the breach the importer was issued with a formal warning letter for placing on the market products in breach of the REACH restriction.

### *Textiles*

In 2011–2012 we conducted a campaign to determine the presence of NP and NPEs in textiles. These substances continue to be detected in waterways across the UK, but there has been little evidence of the source. It was proposed that treated textiles are releasing NPEs into waterways when washed; these then degrade in the environment, forming NP. NP is a WFD Priority Hazardous Substance due to the risks it poses to the aquatic environment.

One hundred pairs of underpants were analysed and NPEs were detected in 28 samples. Further analysis was conducted on six of these samples to find out if NPEs are released during washing. Results showed that NPEs were released from all samples, with 99.9% removed after two washes.

Results from this analysis were used to estimate the volume of NPEs entering UK waterways on imported underpants. In 2011, approximately 173 kg of NPE emissions were estimated to have entered the water environment from imported underpants.

Our work on NP/NPEs is soon to be published in a report on the Environment Agency's external website. Our message is that NPEs are present in imported textiles and that this is an issue for WFD compliance. Engagement with the textiles sector is planned around the time of publication – the aim of this is to raise awareness about NPE use in textiles, its impact upon the environment and to ask textile importers assess their supply chain with the aim of eliminating NPEs. A briefing note will be sent to relevant trade associations for cascade to their members.

There are new proposals from Sweden for additional REACH restrictions concerning NPEs in imported textiles. Our research has been submitted into this process.



## Monitoring

A sampling programme is under way to assess Environment Agency monitoring of NP and NPEs in our rivers and determine the amount removed by sewage treatment works. Stage two of the Chemicals Investigation Programme has already provided some data on removal rates, but this only measured NP and the lower ethoxylate groups.

Ten sewage treatment works were selected for weekly monitoring over a 12-week period. Samples are taken at the influent, effluent and downstream river points. Duplicate samples are taken at each point; one is analysed using the standard analysis technique (which measures NP and ethoxylate groups 1 to 4), the other is analysed using a more precise method (measures NP and ethoxylate groups 1 to 15).

The programme commenced at the beginning of February 2013 and was due to be completed by the end of May 2013.

## Appendix 6: Di(2-ethylhexyl)phthalate research

Research was conducted to identify the current usage of di(2-ethylhexyl)phthalate (DEHP) in preparation for a Water Framework Directive stakeholder day, held in March 2013. The workshop was delivered by our Land and Water Quality colleagues and included discussions for the next stage of River Basin Management Plans (RBMPs). It aimed to raise awareness and understanding of chemicals, and discuss source control options to help the Environment Agency deliver a better approach to tackling chemical pollution.

The research was also used to assess how usage would be affected by the forthcoming REACH authorisation. DEHP has been included on the authorisation list and industry has until August 2013 to apply for authorisation for either manufacturing or producing articles containing it. Producers and users who have not applied for authorisation before that date have until February 2015 to continue to use the substance before final phase-out.

Our research included the following:

- UKWIR Chemicals Investigation Programme data analysis to identify whether there is a relationship between levels of DEHP found in domestic sewage effluent and house age; no relationship was found.
- Environment Agency Pollution Inventory data analysis to identify types of companies using and releasing DEHP into controlled/wastewaters.
- Contact with eight trade associations to identify whether DEHP is used in their industry sector(s); cars, aircraft and casting.
- Internet searches to identify manufacturers who claim to have eliminated the use of DEHP and when this happened.

## Appendix 7: Fluorinated Greenhouse Gases Regulations

### *The impact of F-gases on the atmosphere*

Fluorinated greenhouse gases (F-gases) trap heat in our atmosphere; they are one of the groups of chemicals covered by the Kyoto Protocol. First negotiated in 1997, the Kyoto Protocol is an international agreement that aims to steadily reduce man-made emissions of the gases that contribute most to climate change.

Although F-gases (HFCs, PFCs and SF<sub>6</sub>) contribute less than 2.5% of the global warming potential of UK gas emissions (see Table A7), their high insulating properties mean that these substances attract significant attention. One kilogram of SF<sub>6</sub> (sulphur hexafluoride) has the same climate impact as 23 tonnes of carbon dioxide.

**Table A7 Percentage of UK emissions for various greenhouse gases**

Greenhouse gas	% of UK emissions*
Carbon dioxide (CO <sub>2</sub> )	79.6
Methane (CH <sub>4</sub> )	10.0
Nitrous oxide (N <sub>2</sub> O)	8.0
Hydrofluorocarbons (HFCs)	2.1
Perfluorocarbons (PFCs)	0.1
Sulphur hexafluoride (SF <sub>6</sub> )	0.2

(\*% of global warming potential weighted emissions in tonnes CO<sub>2</sub> equivalent)

### *The Fluorinated Greenhouse Gases Regulations (2009)*

In England, Wales and Scotland, the Fluorinated Greenhouse Gases Regulations place controls on both the use and management of F-gases, and the maintenance of equipment that contains them. Some substances also continue to be phased out under the Ozone-Depleting Substances Regulations.

The regulations apply to many commercial, industrial and private sector organisations; these include end users, as well as manufacturers, distributors and contractors.

There are a number of specialist sectors involved with F-gases, but the main uses include:

- stationary refrigeration and air conditioning;
- fire protection systems and extinguishers;
- mobile air conditioning;
- high-voltage switch gear;
- cleaning solvents in specialist metal and glass manufacturing.

The legal obligations relate to:

- qualification of personnel working with F-gases;
- leakage checking of equipment;

- recovery of F-gases from equipment during maintenance, servicing and at end of life;
- labelling of equipment containing F-gases (and inclusion of information in instruction manuals);
- specialist prohibitions, such as SF<sub>6</sub> use in magnesium die casting and in vehicle tyres.

The regulations also control import, export, production and supply of F-gases. They ban the placing on the market of some substances in various products and equipment, and restrict the use of others. Import and export merchants are required to submit annual reports to the European Commission.

### *Our new role in F-gas regulation*

Historically, the Environment Agency has regulated F-gases and ozone-depleting substances on permitted sites through area teams. During the 2012–2013 financial year, the Chemical Compliance Team (CCT) assumed responsibility from Defra for monitoring the use of these substances in non-permitted applications on a national scale. Our intelligence-led, sector-based approach to regulation maximises environmental outcome by targeting high-risk, large-volume users of F-gases, while minimising burden to industry and economic impact.

In addition, we also took ownership of the F-gas support ('FGS') helpdesk. The helpdesk provides information and guidance on all aspects of the regulations, across the UK to both telephone and email enquiries.

During 2012-2013, one of the primary objectives was to publicise our new role in F-gas enforcement. It was vital that internal and external partners be aware of who to contact to report incidents and to request information. As a result, communications were sent out across a variety of media to reach as wide an audience as possible. These activities are detailed below.

### *Environment Agency external web page*

Our external web page is now active. Members of the public and industry can now access F-gas information and contact details, along with links to the regulations and links to existing F-gas guidance information on the Defra website. A translated page has also been provided in Welsh.

<http://www.environment-agency.gov.uk/business/sectors/144066.aspx>

### *Local authority Knowledge Hub*

The Knowledge Hub (<https://knowledgehub.local.gov.uk/>) is an internet forum for local authority employees. A thread has been posted on the forum highlighting the new enforcement role of the CCT with regard to F-gases. Local authority staff who monitor sites containing F-gases can use this information to contact the CCT to report instances of non-compliance, ask for advice and share knowledge.

### *'F-gas Support' helpdesk launched*

The Environment Agency run helpdesk is now active and has taken over the role of Defra's 'FGS'. The new contact telephone number and email address has been heavily

publicised in both our internal and external communications. An article in the Business Environmental Update e-newsletter went out to 37,000 business subscribers.

Information and advice will continue to be offered on a UK-wide basis. Specific regional enquiries or examples of non-compliance will be passed to pre-arranged contacts within the Scottish Environment Protection Agency (SEPA), Natural Resources Wales (NRW, see Appendix 19) and the Northern Ireland Environment Agency (NIEA).

### *Meetings*

Presentations were provided by the CCT at a Defra F-gas Industry Stakeholder meeting and at a Refcom<sup>8</sup> Stakeholder meeting in March 2013. This publicised the new role of the Environment Agency and established links with trade associations and industry that will be valuable in our future campaign work. An additional meeting was also held with the Food and Drink Federation (FDF) to discuss the prospect of working together to cascade information to FDF members during future awareness campaigns.

### *Training*

Consultants SKM visited the CCT and provided a presentation and training on many aspects of the F-gas regulations to all staff. This provided technical information on how the regulations affect the use and maintenance of F-gas equipment in 'real world' situations. The knowledge gained has been used to answer queries received via the helpdesk.

### *Enforcement work and helpdesk enquiries*

During the limited period in which the CCT has overseen the new F-gas regime, enforcement work has mainly been driven by helpdesk information. By the end of March 2013, 89 enquiries had been received by the F-gas helpdesk. A total of 25 organisations were investigated and/or contacted regarding potential non-compliance with the F-gas regulations. Where non-compliance was established, this resulted in the following actions:

- 11 illegal HCFC-22 products have been removed from the internet. This was the equivalent of approximately 220 kg of banned gas removed from the marketplace.
- 10 companies were instructed to amend their websites that promoted DIY-installation of F-gas equipment by the purchaser. This could have led to non-competent persons venting F-gases to the atmosphere.
- 8 companies were instructed to purchase an F-gas company certificate. To obtain a company certificate, they have to provide evidence that their engineers are appropriately qualified and work within the requirements of the regulations.
- 1 company was issued with a warning letter for misuse of logos belonging to regulatory bodies.

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<sup>8</sup> One of the bodies that undertakes certification of F-gases.

## *Feedback*

The response we have received from our partners has been very encouraging. Industry feedback, both direct and via trade associations, has shown a positive attitude towards us challenging non-compliant activities. Furthermore, customers who have contacted our F-gas support helpdesk have praised our service in terms of response efficiency and content.

## Appendix 8: Polychlorinated biphenyl campaign (dairy and bakery sector)

The campaign was launched in March 2012 to assess awareness of and compliance with the polychlorinated biphenyl (PCB) regulations across the food (dairy and bakery) sector.

### Preliminary desktop research

The target audience for this phase of PCB compliance monitoring was initially selected based upon the Chemical Compliance Team's knowledge of previous occurrences of unregistered PCB transformers. It was considered that operators within this sector could have more unregistered PCB Contaminated Equipment. The manufacture, storage and retail of food can require high-energy input (or constant power supply) to ensure products or stock are treated or stored at the regulated temperatures. Datasets show that, among chemical production and fuel refining, the food production sector ranks highly in terms of energy consumption. In particular, the areas of food manufacture with the highest energy consumption were manufacture of bread, pastry and cakes, and dairies and cheese making. As well as using step-up transformers, companies in the food production sector are likely to install back-up energy generation equipment because power loss can mean that large quantities of product are no longer suitable for resale, leading to significant downtime and loss of revenue for the operator.

### Targeting

In light of the above preliminary research, a list of potential targets was compiled using the following resources:

- Mint UK reports (leading companies and their immediate peers in the relevant sectors);
- Hazardous Waste Intelligence Database (PCB disposals during 2011).

A total of 16 companies were selected to receive an information notice; none of these companies had a current PCB registration.

### Communications

Nine industry bodies were contacted before we sent out information notices; these included representatives from the Environment Agency's food and drink sector group and also covered some associations with a specific dairy or bakery membership. Background information was supplied to enable them to cascade information about the campaign to their members. Contact details were also provided so that enquiries could be handled swiftly and efficiently.

### Results

Responses to the information notices demonstrated a generally good level of compliance across both the bakery and dairy sectors.

One company registered items of potentially PCB Contaminated Equipment and conducted further testing which confirmed the presence of PCBs. The transformers were found to have below 500 ppm PCBs and will continue to be registered until the end of their useful life; the company is now working to dispose of PCB-containing

power factor capacitors at several sites and is undertaking further audits of smaller depots, alongside scheduled maintenance.

Many of the target companies had already replaced equipment so that they no longer hold items of an age where PCBs could be present. However, it was also clear that many of the target companies did not have complete records of audits and analysis when they were first contacted. Some required extended deadlines to compile the necessary evidence – and in some cases, extra time was needed to carryout PCB analysis that was lacking for particular sites or items of equipment.

Although not explicit in all cases, contact with the company and the contents of some of the responses indicated that the lack of centralised audit and analysis records was attributable to the acquisition or transfer of operational sites from other companies within the same sector.

Several targets enquired about (or provided information to suggest that they had) sites where transformers and other equipment were the property of their local energy suppliers. As follow-up to all notices, advice was provided to contact energy suppliers and check for PCBs in supplier-owned equipment that is present on sites occupied by the target company – this information could be valuable to incident response plans and worker health and safety. Similarly, follow-up communications also explained that while the registration responsibility is generally upon the owner of the equipment, companies should check PCB presence with landlords if they are the tenant of any of the sites they operate from.



## Appendix 9: Polychlorinated biphenyl campaign (supermarket sector)

The campaign was launched in June 2012 to assess awareness of and compliance with the polychlorinated biphenyl (PCB) regulations across the supermarket sector.

### Preliminary desktop research

Supermarkets were selected as the target audience for this phase of PCB compliance monitoring because PCB registrations data showed some companies had registered a few sites in the past, while others had never held a registration. It was considered likely that operators within this sector would have similar property portfolios and so could have unidentified PCB Contaminated Equipment. This was based on the understanding that the storage and retail of food can require high-energy inputs (or constant power supplies) to ensure products or stock are stored at the regulated temperatures.

### Targeting

In light of the above preliminary research, a list of potential targets was compiled using the following resources:

- Mint UK reports (leading companies and their immediate peers in the relevant sectors);
- Hazardous Waste Intelligence Database (PCB disposals during 2011).

A total of 13 companies were selected to receive an information notice. Only one of these had a current PCB registration; although others had held previous registrations, these were for isolated sites and did not indicate that their entire estate had been considered.

### Communications

One industry body was contacted prior to the launch of the campaign. Background information was supplied to enable it to cascade information to its members. Contact details were also provided so that enquiries or feedback could be handled efficiently.

### Results

There were a number of common issues that delayed response times and hindered compliance checks across the supermarket sector. The majority of targets considered that the company had been previously audited for PCBs and that PCB-containing items had been identified and removed as part of estate upgrades and maintenance programmes. However, supporting information was generally not held centrally and regional record-keeping methods varied; this led to delays in the majority of targets being able to provide confident responses to the information notices.

One company registered items of potentially PCB Contaminated Equipment and conducted further testing which confirmed the presence of PCBs. The transformers were found to be below 500 ppm PCBs and will continue to be registered until the end of their useful life; the company is now working to dispose of PCB-containing power factor capacitors at several sites.

One company carried out site inspections and discovered an unidentifiable capacitor considered to be of a type that could contain PCBs. In the absence of manufacturer details, or other information, it was reasonable to assume the presence of PCBs. The item was less than 5 litres in volume and hence did not require registration; however, there remains a requirement to dispose of the item and it has now been disconnected and the company has planned for its proper disposal.

Several other targets have needed to arrange and carry out site inspections and audits. Work with three of these companies is ongoing, and current progress has not produced any further evidence of non-compliance.

## Appendix 10: Polychlorinated biphenyl disposal follow-up

### Non-disclosure of PCB holdings

During 2012–2013 we continued to make use of the Hazardous Waste Intelligence Database (HWID) to identify disposals of polychlorinated biphenyl (PCB) oil or PCB Contaminated Equipment that had not been recorded on the PCB database.

Data was filtered to identify disposals of waste with European Waste Catalogue (EWC) codes relating to the disposal of PCB waste (130101, 130301, 160109, 160209, and 160210). The organisations identified as making the disposals were then targeted in three phases.

Each target organisation was sent an advisory letter requiring the submission of information on the disposal of PCB Contaminated Equipment.

#### *Phase 1*

In January 2012, a letter was sent to each of three businesses who were found to have made a PCB disposal on the HWID, but who had not disclosed this information to the Environment Agency. These companies had previously registered PCB Contaminated Equipment at the same sites from which the disposals were registered. The letter contained details of the disposal(s) and an information request form for the business to complete.

All three businesses responded to the letter. The responses to the letter are summarised in Table A10.1.

**Table A10.1 Summary of responses to the Phase 1 letter**

<b>Response provided by company</b>	<b>No. of replies</b>
The disposal was of PCB Contaminated Equipment	1
The equipment disposed of was assumed to contain PCBs, but after testing was found to be PCB free	1
The wrong European Waste Catalogue (EWC) code was used, the waste did not contain PCBs	1

Once the responses had been assessed, an advisory letter was sent to the one business which had disposed of PCBs and not disclosed this information to the Environment Agency. The letter reminded them of their responsibilities under the PCB regulations.

#### *Phase 2*

In April 2012, a letter was sent to 15 businesses which were found to have made a disposal of PCB oil or PCB Contaminated Equipment on the HWID. Although these companies had registered PCBs with the Environment Agency in the past, they had failed to register the specific sites listed in the HWID or to notify the Environment Agency of these disposals. The letter contained details of the disposal(s) and an information request form for the business to complete.

A total of 14 businesses responded to the letter. The business which did not respond had ceased trading from that site. The responses to the letter are summarised in Table A10.2.

**Table A10.2 Summary of the responses to the Phase 2 letter**

<b>Response provided by company</b>	<b>No. of replies</b>
The disposal was of PCB Contaminated Equipment	2
The wrong EWC was used, and the waste did not contain PCBs	5
Volume of disposal PCB oil was <5 litres	1
PCB content was tested and found to be <50 ppm	1
The equipment disposed of only contained PCB residue (<5 litres in volume)	1
The equipment disposed of was assumed to contain PCBs, but after testing was found to be PCB free	4
The division of the company had since been closed. Manufacture has ceased at this location	1

Once the responses had been assessed, an advisory letter was sent to the two businesses which had disposed of PCBs and not disclosed this information to the Environment Agency. The letter reminded them of their responsibilities under the PCB regulations.

### *Phase 3*

In April 2012 a letter was sent to 135 businesses that were identified as having disposed of PCB oil or PCB Contaminated Equipment yet had not ever registered equipment on the PCB database. The letter contained details of the disposal(s) and an information request form for the business to complete. From the 135 businesses, 90 responded to the letter, but 45 businesses did not provide a response. The responses to the letter are summarised in Table A10.3.

**Table A10.3 Summary of the responses to the Phase 3 letter**

<b>Response provided by company</b>	<b>No. of replies</b>
The wrong EWC was used, and the waste did not contain PCBs	30
The company on the consignment note is a waste transfer station or a permitted waste contractor, who did not own the equipment that was disposed of	20
The disposal was of PCB Contaminated Equipment	18
The equipment disposed of was assumed to contain PCBs, no testing was undertaken	10
The equipment disposed of was <5 litres in volume	10

<b>Response provided by company</b>	<b>No. of replies</b>
Previous testing had shown the equipment contained <50ppm of PCBs; however, when the equipment was disposed of it tested at >50ppm	2
No response received	45

Following the responses to the letter, an advisory letter was sent to 37 businesses reminding them of their responsibilities under the PCB regulations. Three of these companies have since registered 121 pieces of PCB Contaminated Equipment.

### **Future investigations**

This method has helped us to raise awareness of the PCB regulations and has led to an increase in PCB registrations. Due to its success we will continue to review the HWID on an annual basis.

In February 2013 we started a review of hazardous waste data from 2012. We identified 248 incidents, involving 129 organisations, where PCB Contaminated Equipment was disposed of and not reported on the PCB database. These instances are under investigation. Results will be reported in the 2013–2014 Annual Report.

## Appendix 11: Annual PCB registrations

### **Polychlorinated biphenyl update**

Our work continues to raise awareness of the regulations and maximise compliance. In June 2012 we sent emails to 74 current polychlorinated biphenyl (PCB) registrants to remind companies to renew their annual registration of Contaminated Equipment.

During 2012–2013, eight previously unregistered holders of PCB Contaminated Equipment registered 143 additional holdings.

In addition to maintaining the database register, we have conducted meetings with customers. By creating a strong relationship with PCB registrants and stakeholders, we have overcome a variety of issues such as duplication and the need for data cleansing.

## Appendix 12: Hexachlorobenzene campaign

Hexachlorobenzene (HCB) is a man-made toxic chemical. Historically, it has been used in fireworks as a chlorine donor to increase the brightness and intensity of colours; however, alternatives are now available. HCB is banned by the EU Persistent Organic Pollutants (POPs) Regulations (2004) and listed under the Water Framework Directive as a Priority Hazardous Substance.

### HCB impacts on human health and the environment

HCB is a carcinogen, mutagen and reproductive hazard. It is harmful if it is swallowed, inhaled or comes into contact with the skin. Once HCB enters the body, it quickly spreads to many other tissues, especially fat, within a few hours. It can remain in fat for years and can be transferred in the fat in human milk.

HCB is persistent in the environment and has the potential to bioaccumulate in fish, marine mammals, birds and plants. Acute toxic effects include death of animals, birds and fish and death or low growth rate in plants. In animals, birds and fish, chronic toxic effects include shortened lifespan, reproductive problems, lower fertility and changes in appearance and behaviour. Organism and sediment samples from remote Arctic locations have suggested that it can be transported over long ranges, by air or ocean currents.

### Preliminary desktop research

As a way of more broadly assessing the compliance of the UK fireworks industry with the POPs regulations, it was decided to conduct a large-scale analysis of fireworks for HCB. Information from UK Trade Info ([www.uktradeinfo.com](http://www.uktradeinfo.com)) and the Health and Safety Executive's (HSE's) explosives database was used to find a list of UK fireworks importers.

### Targeting

To simplify obtaining samples for analysis by the Health and Safety Laboratory (HSL) and to cut down on costs, we decided to focus on online retailers of fireworks who were also fireworks importers. The list of importers was compared to see if the company had an online shop from which the fireworks could be purchased.

Fireworks that had a blue, green or purple effect, which are the colours that HCB is used for, were selected from a number of the online retailers.

Nineteen fireworks were purchased from 12 companies. These were sent to the HSL for analysis for HCB. Information notices were served on the 12 companies requesting information on the fireworks they had purchased and what checks they made to ensure compliance with the POPs regulations.

### Results

All 12 companies that we served notice on provided the necessary information. Analysis found four fireworks from two companies to be non-compliant.

This campaign is ongoing and results of any further investigations will be provided in our 2013–2014 Annual Report.

## Appendix 13: Hexachlorobenzene trace contamination

### **Fireworks magazine article**

We wrote an article 'Stealth chemicals in your fireworks' for the 2012 spring edition of trade magazine *Fireworks*. This once again highlighted the issue of hexachlorobenzene (HCB) in fireworks but also discussed trace-level contamination of HCB in fireworks.

The article discussed how the POPs regulations allow exemptions for 'unintentional trace contamination' but that there is no threshold set for HCB or a definition of unintentional trace contamination. This meant that any companies found to be importing fireworks containing HCB, no matter how low the concentration, could have been liable to enforcement action from the Environment Agency. The article explained how we addressed this by using available information and research to help define 'unintentional trace contamination' as levels <50 mg/kg. The article also explained how we worked closely with the Explosives Industry Group (EIG) to gather knowledge and expert opinion from an industry perspective.

Agreeing on the limit will help us to deliver targeted and proportionate enforcement action on those fireworks that represent the greatest environmental risk, while also providing reassurance and a level playing field for industry by providing clear guidelines.

The article has been read by a number of people within the fireworks community and has helped communicate the importance of this restriction while raising the profile of the Chemical Compliance Team and how we work with industry to help resolve issues that affect them.



## Appendix 14: Pentabromodiphenyl ether campaign

Pentabromodiphenyl ether (pentaBDE) is a Water Framework Directive (WFD) Priority Substance. It is listed in the EU Persistent Organic Pollutants (POPs) Regulations (2004) as a prohibited substance (as amended under Regulation No. 757/2010). There are certain specific exemptions.

EU No. 757/2010, Annex I, Part A:

Pentabromodiphenyl ether  $C_{12}H_5Br_5O$

(1) For the purposes of this entry, Article 4(1)(b) shall apply to concentrations of pentabromodiphenyl ether  $\leq 10$  mg/kg (0.001% by weight) when it occurs in substances, preparations, articles or as constituents of the flame-retarded parts of articles.

(2) By way of derogation, the production, placing on the market and use of the following shall be allowed:

(a) without prejudice to subparagraph (b), articles and preparations containing concentrations  $< 0.1\%$  of pentabromodiphenyl ether by weight when produced partially or fully from recycled materials or materials from waste prepared for re-use;

(b) electrical and electronic equipment within the scope of Directive 2002/95/EC;

(3) Use of articles already in use in the Union before 25 August 2010 containing Pentabromodiphenyl ether as a constituent of such articles shall be allowed. Article 4(2), third and fourth subparagraphs shall apply in relation to such articles.

### Historical use of PentaBDE

PentaBDE acts as a flame retardant and is used in rigid and flexible polyurethane foams; most of this foam is used in upholstery and furnishing. PentaBDE is used in a variety of polymer resins and plastics.

Articles which have been treated with pentaBDE include high-impact polystyrene, textiles, building materials, and plastics used as components in electrical and electronic equipment (EEE).

### PentaBDE in the environment

During manufacture, pentaBDE is added to products rather than being permanently bound. As a result it has the potential to be released during production, while in use, or after the product's disposal. Samples taken from locations worldwide have found pentaBDE present in sediment, sewage sludge and river sediment.

PentaBDE is persistent in the environment and has the potential to bioaccumulate in fish, marine mammals, birds and terrestrial mammals. Studies have shown that exposure to pentaBDE causes significant health problems in organisms; these include thyroid disruption, liver damage, reproductive problems, and development abnormalities or death.

## Water Framework Directive

PentaBDE is a Priority Substance under the WFD and EU member states must aim to cease or phase out all emissions, discharges and losses.

PentaBDE poses particular risk to the aquatic environment. PentaBDE continues to be detected in waterways across the UK but there is limited evidence to determine the pollutant source. It has been detected in the effluent from wastewater treatment facilities and may threaten WFD Environmental Quality Standard targets.

Within the EU, the marketing and use of pentaBDE is restricted. Products imported from outside the EU that have been treated with a flame-retardant solution may contain illegal levels of pentaBDE.

## Project summary

The UK's stringent fire safety regulations have generated a demand for aftermarket fire retardant treatment solutions. Research found that many of these products are available commercially in the UK.

A total of 104 flame-retardant solutions were investigated for pentaBDE content in excess of 0.001% by weight. Three products were identified as having elevated pentaBDE content, according to their material safety data sheets (MSDSs). Ten further products provided insufficient evidence to prove whether they were compliant with the regulations.

A campaign pack was issued to each of the 13 companies whose products appeared to have elevated pentaBDE content or where there was insufficient evidence. The packs contained a covering letter, regulatory guidance, and an information notice. The information notice requested information on whether the product contained pentaBDE above the regulatory limit. If not, the vendor was required to provide evidence to support their answer.

## Results

Vendors of the ten products that had insufficient composition evidence all provided MSDSs which proved their products did not contain pentaBDE.

Two of the three products that were shown to be non-compliant in their MSDSs were no longer in production. The Chemical Compliance Team (CCT) ensured that advertising for these products was removed from the internet.

The remaining product was proved to have been reformulated when PBDE was restricted for sale and use in the EU. The MSDS was out of date for the current product. We ensured that the MSDS was updated to reflect the composition of the latest compliant product.

## Follow-up

The results of this campaign suggest that aftermarket fire retardant solutions available in the UK are free from pentaBDE. Further work is planned in 2013–2014 to investigate other products for the potential source of pentaBDE in UK waterways. This will be part of the CCT-run Chemical Source Control Project on 'Polybrominated diphenyl ethers 2013–2014'.

Research has begun to establish sources and pathways of polybrominated diphenyl ethers (mainly pentaBDE) into the water environment. As indicated above, historically

polybrominated diphenyl ethers have been used as flame retardants in textiles. Initial research indicates that leaching from furniture may still be causing emissions to water as the furniture reaches its end of life and is disposed of in landfills. Other possible sources include plastics, foams, paints, end of life (landfill/incineration) and migration from products into dust.

In April 2013, two members of the CCT attended a POPs conference in Birmingham which focused on brominated flame retardants (including pentaBDE). It was a great opportunity for contacts to be made with researchers from all over Europe.

## Appendix 15: Nanotechnology research

### Background

In 2012–2013 the Chemical Compliance Team continued to carry out research on nanotechnology on behalf of Defra. The aim of this project was to gather a list of who is producing/using nanomaterials in the UK, and to develop an understanding of the types of nanomaterial on sale and in use.

### Targeting

Using information from the internet, academia and industry, a list of potential organisations involved in the production and/or use of nanomaterials in the UK was compiled. For each target organisation we set out to gather three key pieces of information:

- company contact details (including the name of a suitable contact)
- details of the type of nanomaterial produced; and/or
- relevant industry/product sector.

### Supply chain details

Our preferred method for gathering this information was direct contact with the organisation via phone. A call script was put together to assist people making the calls.

In 2011–2012 we selected 20 organisations from a variety of industry sectors to target as part of a pilot campaign. The main aim of this was to test our methods of gathering information via phone.

In July 2012 a review of the pilot campaign with internal and external partners, including Defra, the Health and Safety Executive (HSE) and the Nanotechnology Knowledge Transfer Network (NanoKTN), concluded that the rate of response, in terms of the proportion of those contacted who agreed to provide information, was very encouraging. It was also agreed that the wording of the call script and the way it addressed concerns such as how the data would be used had contributed to the positive results.

Due to the success of the pilot study the project was extended into 2012–2013 to target further organisations. Our primary contact source for the exercise was publicly available nanotechnology directories and our initial focus was on UK industry contacts.

### Results

The results from the pilot study (conducted in 2011–2012) have been reported together with results from 2012–2013.

In total we have had successful contact with 268 organisations who we identified through initial research as potentially producing and/or using nanomaterials. Of these, 66 have confirmed that they are currently producing, using and/or distributing nanomaterials in the UK. These organisations are from a variety of sectors including:

- materials (i.e. chemicals manufacture)
- research and development

- healthcare
- energy
- electronics

The nanomaterials being produced, used or distributed have applications in a variety of industry/product sectors. The most common applications were in the following sectors:

- electronics
- energy
- healthcare
- coatings
- pharmaceuticals

The types of nanomaterial identified include metal-based nanomaterials (silver, copper, gold), inorganic non-metallic nanomaterials (titanium dioxide, aluminium oxide) and carbon-based nanomaterials (carbon nanotubes, graphene). Other examples include photovoltaic inks and pegylated fatty acids.

Four of the organisations we contacted are not producing and/or using nanomaterials but are involved with nanomaterials in other ways. For example, they are involved in the characterisation of materials, they use them to test their measuring equipment, or their customers use their facilities to produce nanomaterials. A further three organisations are not currently producing and/or using nanomaterials but are likely to do so in the future.

## Future work

In 2013–2014 we will continue to update and maintain the database of nanotechnology contacts that we have developed. To date, our attention has focused on industry contacts who have taken up membership in publicly available nanotechnology groups/directories. In 2013–2014 we will look to consider targets from other areas. Potential target areas include:

- other industry contacts – those that are not listed in nanotechnology membership directories (i.e. those identified in consumer product databases)
- universities.

## Appendix 16: Risk management work

Since September 2011, members of the Chemical Compliance Team (CCT) have been working closely with the Chemical Assessment Unit (CAU) and the Health and Safety Executive (HSE) on risk management proposals.

Work has progressed on a UK project (joint between the CCT, CAU and the HSE) to restrict certain cyclic siloxanes in 'cosmetics with potential for water emissions'. We are working with a contractor to assess the scope and potential impact of various risk management options, taking into account risk issues and also socio-economic impacts. This follows on from previous work completed by CAU which identified that two cyclic volatile methylsiloxane substances (commonly known as D4 and D5) meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), as defined in annex XIII of the EU REACH regulation (2006). As they are PBT/vPvB substances there is assumed to be no safe level of emission, and emissions should therefore be reduced, in accordance with the REACH regulations, as far as technically and practically possible. Currently the project has taken the form of a review of available documentation, including industry Chemical Safety Reports (CSRs), environmental monitoring studies, academic reports and other relevant documents. We are also liaising closely with industry bodies to maintain a good working relationship. The aim of this project (if sufficient risk to the environment is demonstrated) is to prepare a formal dossier proposing restriction of these substances under Annex XVII of REACH.

We have attended various Risk Management Expert (RiME) meetings to discuss potential future risk management activities. These are informal meetings of EU member states where the format of current work and future proposals for risk management work can be discussed.

We have attended various workshops held by the European Chemicals Agency (ECHA) to learn from the experiences of other member states when preparing dossiers and risk management options (RMO) papers and to pass on our own experiences.

We have evaluated risk management proposals from other EU member states. Other EU member's Competent Authorities also submit proposals for chemicals to be controlled. We have the opportunity to critically assess these proposals and, where appropriate, supply UK data to either support (or otherwise) the suggested risk management options.

The UK is the rapporteur for the Annex XV dossier for nonylphenol and its ethoxylates; the rapporteur is the main assessor, working on behalf of a committee to form an opinion of a proposal. The recording was mainly taken on by the CAU, but CCT were involved in reviewing and critically assessing the dossier. On the basis of this review, the dossier was found not to reach conformity by the risk assessment committee of ECHA. CCT are now leading a project to gather relevant data held by the Environment Agency, which may help when the dossier is resubmitted later in 2013.

## Appendix 17: Landfill Leachate Project

The project was designed to conduct a preliminary investigation into the composition of landfill leachates, the possible effects they may be having on the local groundwater and any related Environmental Quality Standard failures.

The intention of the work is to assess the chemical make-up of landfill leachate in respect to Priority Hazardous Substances and other currently restricted chemicals.

The sampling included two leachate samples and two groundwater samples from 18 specified landfill sites of different types (see Table A18.1). The sampling has been spread over a proscripted time period and varying weather conditions and covered a range of locations (see Table A18.2). The samples were taken to the Environment Agency's laboratories for analysis.

The National Laboratory Service carried out the analysis of the samples using the MSCRN: Det Code: 4994 Method Code: 22 method. The analysis is expected to be completed in mid June when the evaluation process will begin.

The deliverable outcome will be a realistic assessment of the current and potential environmental effect of discharges of landfill leachates.

The gathered results will be scrutinised for the presence of Priority Hazardous Substances (PHSs), Substances of Very High Concern (SVHCs), persistent organic pollutants (POPs) and pharmaceuticals and conclusions will be fed into the Chemical Source Control Project.

**Table 18.1 Types of landfill sites to be sampled**

Landfill sites	No. of each type
Non-hazardous historical	2
Hazardous historical	2
Non-hazardous closed	6
Non-hazardous open	4
Hazardous closed	2
Hazardous open	2

**Table 18.2 Locations of landfill sites to be sampled**

Location	No. in each area
South East/West Thames/Kennet & Thame	3
North West/South/Cheshire North & West	4
Midlands/Central/Tame & Anker	6
North East/Tees Valley	2
Anglian/North/Upper Neme	2
South West/Wessex/Lower Bristol Avon	1

## Appendix 18: Natural Resources Wales

On 1 April 2013 Natural Resources Wales (NRW) took over the functions of the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, as well as some functions of Welsh Government.

### Roles and responsibilities of the Environment Agency and NRW

The Environment Agency is the lead organisation for water management and environmental regulation in England. It was established under the Environment Act 1995. Its principal aim is to protect and improve the environment, taken as a whole, to contribute towards achieving sustainable development.

It has a wide range of functions: flood and coastal risk management (including a strategic overview role for flooding in England), water resources and water quality management (including a Competent Authority role for River Basin Management Plans under the Water Framework Directive), business regulation (including the regulation of waste management and movement of waste), biodiversity, fisheries management and navigation. Within all of the Environment Agency's work it ensures that it is able to adapt to a changing climate.

The Environment Agency works closely with other delivery bodies in England that are responsible for other aspects of land management. These include Natural England, which leads on conservation, enhancement and management of the natural environment, and the Forestry Commission in England, which leads on the delivery of forestry policy and woodland management. Joint working between these organisations is covered by a separate memorandum of understanding.

Any information the Environment Agency gathers during its routine work that relates to companies/sites that are solely based inside the NRW boundaries will be passed to the nominated contact within NRW so that they can then decide on the appropriate enforcement action.

The purpose of NRW is to ensure that the natural resources of Wales are sustainably maintained, enhanced and used, now and in the future.

NRW will work for Wales' economy and enable the sustainable use of natural resources to support jobs and enterprise. It will help businesses and developers to understand and consider environmental limits when they make important decisions.

It will work for the communities of Wales to protect people and their homes as much as possible from environmental incidents like flooding and pollution. It will provide opportunities for them to learn, use and benefit from Wales' natural resources.

It will work to maintain and improve the quality of the environment for everyone. It will work towards making the environment and natural resources more resilient to climate change and other pressures.

### Polychlorinated biphenyl update

Due to the small number of registrations from companies based in Wales, the Environment Agency will continue to complete all registrations for businesses registering their PCB equipment in England and Wales. If there are any businesses in Wales identified for investigation for non-compliance with the PCB regulations then NRW will be responsible for dealing with this.



# List of Directives and Regulations

Where applicable, references to Directives and Regulations shall be taken to mean those Directives and Regulations as amended.

Biocidal Products Regulations (EU) 528/2012

Control of Dangerous Substances and Preparations Regulations 2006 (S.I.2006/3311)

Cosmetic Products (Safety) Regulations 2008 (S.I. 2008/1284)

Directive 98/8/EEC - Biocidal Products

Directive 2008/105/EC - Environmental Quality Standards

Directive 2002/95/EC – Restriction on hazardous substances in electrical and electronic equipment

Directive 2008/98/EC - Waste Framework Directive

Directive 2000/60/EC - Water Framework Directive

Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011 (S.I. 2011/1543)

Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances) (England and Wales) Regulations 2000 (S.I.2000/1043)

EU Persistent Organic Pollutants Regulations 2004 (850/2004/EC)

EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Regulation 2006 (EC) 1907/2006

European Commission Recommendation on the Definition of Nanomaterial (2011/696/EU)

Fluorinated Greenhouse Gases Regulations 2009 (S.I.2009/261)

Mercury Export and Data (Enforcement) Regulations 2010 (S.I. 2010/265)

Persistent Organic Pollutants Regulations 2007 (S.I.2007/3106)

REACH Enforcement Regulations 2008 (S.I.2008/2852)

# List of abbreviations

CAU	Chemical Assessment Unit
CCT	Chemical Compliance Team
CIP	Chemicals Investigation Programme
CLEEN	Chemical Legislation European Enforcement Network
CO <sub>2</sub>	carbon dioxide
Defra	Department for Environment, Food and Rural Affairs
DEHP	di(2-ethylhexyl)phthalate
EC	European Commission
ECHA	European Chemicals Agency
EIG	Explosives Industry Group
EQS	Environmental Quality Standard
EU	European Union
EWC	European Waste Catalogue
FDf	Food and Drink Federation
F-gases	fluorinated greenhouse gases
HCb	hexachlorobenzene
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbons
HSE	Health and Safety Executive
HWID	Hazardous Waste Intelligence Database
MSDS	material safety data sheet
NanoKTN	Nanotechnology Knowledge Transfer Network
NP	nonylphenol
NPEs	nonylphenol ethoxylates
NRW	Natural Resources Wales
ODSs	ozone-depleting substances
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PBT	persistent, bioaccumulative and toxic
PCB	polychlorinated biphenyl
PCT	polychlorinated terphenyl
pentaBDE	pentabromodiphenyl ether

PFC	perfluorocarbons
POP	persistent organic pollutant
PPC	Pollution Prevention Control
RBMP	River Basin Management Plan
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RIME	Risk Management Expert Group
TBT	tributyl tin
UKWIR	UK Water Industry Research
WFD	Water Framework Directive

# Glossary

Annex XVII of the EU REACH Regulations (2006) and subsequent amendments	Annex XVII of the REACH regulation contains marketing and use restrictions for over 50 chemicals; these pose a threat to the environment or to human health via exposure to the environment.
Chemical Legislation European Enforcement Network (CLEEN)	An informal network that coordinates and improves the enforcement of EU chemicals legislation.
Enforcement notice	Legal document requiring the recipient to take specific steps in relation to a breach/anticipated breach of regulations.
Environmental Quality Standard (EQS)	Threshold limits for certain chemicals in controlled waters as set out by the Environmental Quality Standards Directive.
Fluorinated gases (F-gases)	Fluorinated gases are powerful greenhouse gases. They have the potential to contribute to global warming if emitted to the atmosphere. They are most commonly used as the refrigerant in air conditioning and refrigeration systems.
Hazardous Waste Intelligence Database (HWID)	A national database that contains information on registered producers of hazardous waste and consignee returns.
Information notice	Legal document requiring the recipient to provide information.
Persistent organic pollutant (POP)	POPs are carbon-containing compounds which meet the chemical assessment criteria for a persistent, bioaccumulative and toxic (PBT) substance.
Pollution Inventory	The Pollution Inventory collects data on annual emissions of pollutants emitted from industrial activities regulated by the Environment Agency.
Polychlorinated biphenyl (PCB) Contaminated Equipment	Equipment that contains more than 5 litres of a PCB substance at a concentration of more than 50 parts per million (ppm).
POPs Regulations 2007	These regulations ban or restrict the production, use and sale of chemicals listed in Regulation 850/2004/EC on Persistent Organic Pollutants (and subsequent amendments) and require efforts to minimise the formation of unintentional persistent organic by-products.
Priority Substance and Priority Hazardous Substance	Priority Substances are harmful substances. Priority Hazardous Substances are extremely harmful. They are both listed under the Water Framework Directive as posing a significant risk to or via the aquatic environment.
Water Framework Directive (2000/60/EC)	European legislation which promotes an inclusive approach to water management through river basin planning.

