

# Efforts to Manage Perfluorinated Chemicals (PFCs) in the United States



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# Overview

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- U.S. EPA is investigating perfluorinated chemicals (PFCs) because:
  - They are persistent in the environment and some can remain in people for a long time
  - Some PFCs cause developmental, systemic, and other adverse effects in laboratory animals
  - For some PFCs, there's a narrow margin between the dose that causes mild effects and a dose that causes severe effects in animals
  - While we don't know what the adverse effect level would be in people, we believe it makes sense to limit future releases of these chemicals

# Background

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- U.S. EPA received information in late 1990s on a PFC called perfluorooctyl sulfonate (PFOS):
  - widespread in blood of general U.S. population & environment
  - presented concerns for persistence, bioaccumulation & toxicity
  
- Another PFC called perfluorooctanoic acid (PFOA) was found to present similar concerns
  
- 3M, sole U.S. manufacturer of PFOS, voluntarily phased out perfluoroalkyl sulfonate (PFAS) (family of chemicals to which PFOS belongs)
  
- U.S. EPA published final rules in 2002 & 2007 to limit future manufacture or importation of PFAS chemicals

# 2010/15 PFOA Stewardship Program

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- ❑ In January 2006 EPA invited eight major fluoropolymer and telomer manufacturers to participate in the **2010/15 PFOA Stewardship Program**
- ❑ Participants made voluntary corporate commitments to:
  - Achieve, no later than 2010, a 95 % reduction, measured from a year 2000 baseline, in *both*: facility emissions to all media and product content of PFOA and related chemicals
  - Work toward the elimination of PFOA and related chemicals from emissions and products by five years thereafter, or no later than 2015
- ❑ Companies submit annual public progress reports- latest available on EPA website: [www.epa.gov/oppt/pfoa](http://www.epa.gov/oppt/pfoa)
- ❑ Program does not preclude regulatory action by EPA

# New Chemical Review of Alternatives for PFOA and Related Chemicals

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- ❑ U.S. EPA incorporated information on PFOS, PFOA into new chemical reviews for related materials and substitute compounds
- ❑ Through September 2009, over 150 alternatives of various types have been received and reviewed by EPA
- ❑ EPA reviews the new chemicals against the range of toxicity, fate and bioaccumulation issues that have caused past concerns with PFCs, as well as issues that may also be presented by new chemistries

# International Cooperation

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- November 2006 OECD Workshop on PFCs:
  - Recommended “wider establishment of Stewardship Programs within the OECD and beyond to minimize the potential impact of PFCs”
  - Also recognized differences in implementing risk reduction measures in member countries
  
- February 2009 PFCs Workshop proposed actions:
  - Support development of and participation in voluntary national and international PFC stewardship programs
  - Promote information exchange on more acceptable, economically viable alternatives, and their use
  
- OECD sent survey this summer to companies in member countries to report product content & environmental release information on PFOS, PFOA & other PFCs

# Other International Developments

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- In May 2009, the Second Session of the International Conference on Chemicals Management (ICCM2) adopted Resolution II/5, **“Managing Perfluorinated Chemicals and the Transition to Safer Alternatives”**:
  - Supports development of national and international stewardship programs and regulatory approaches to reduce emissions and content of relevant PFCs of concern in products and to work toward global elimination, where appropriate and technically feasible
  
- In May 2009, parties to the Stockholm Convention on Persistent Organic Pollutants agreed to add PFOS, its salts, and perfluorooctane sulfonyl fluoride (PFOSF) to Annex B of the convention, subjecting it to restrictions on production and use

# Outcomes of U.S. Efforts to Manage PFCs

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- Phaseout of PFAS chemicals in the United States, except for very few essential uses with limited exposures
- Work toward elimination of PFOA and related chemicals under the PFOA Stewardship Program and internationally
  - Many participants meeting targets ahead of schedule
  - Many new alternatives to longer-chain PFCs have been developed as a result of the stewardship program
- 2007 U.S. Centers for Disease Control study reported 32% and 25% reduction of PFOS and PFOA, respectively, in human blood concentrations in samples from 1999/2000 compared to the most recent data in 2003/2004
  - Report concludes reductions most likely related to changes brought about by EPA efforts on these chemicals and other related efforts by government and industry



# Lessons Learned

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- ❑ Combination of voluntary and regulatory approaches can be useful in reaching successful outcomes
- ❑ It's important to partner with industry to evaluate existing chemicals, and to develop and evaluate alternatives to chemicals of concern
- ❑ Coordination with other countries is also critical

# U.S. EPA's Next Steps

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- ❑ Continue to work with industry partners and other stakeholders toward the elimination of PFOA and related chemicals by 2015, and to evaluate alternatives to these PFCs
- ❑ Continue research to determine sources and pathways of exposure to these chemicals and better understand the hazard
- ❑ Continue to work collaboratively with other countries on the many international initiatives on PFCs: Strategic Approach to International Chemicals Management (SAICM), OECD efforts, Stockholm Convention