Activities on Perfluorinated Chemicals (PFCs)

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USCAR Teleconference
March 6, 2008

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Concerns with PFCs

- PFCs are unique chemical properties which make them commercially valuable
  - Synthetic (man-made) chemicals that do not occur naturally in the environment
  - Numerous manufacturing and industrial applications, including uses in auto industry

- Interest in perfluorinated compounds began in the late 1990's, especially with perfluorooctyl sulfonate (PFOS) and perfluorooctanoic acid (PFOA)
  - Present in blood of the general US population and environment
  - Persistent in the environment and many biological organisms
  - Developmental and other adverse effects in laboratory animals
  - Long half-lives in humans measured in years

Actions on PFCs

- Phaseout of PFOS
  - 3M, the principal global producer of PFOS and the only producer of PFOS and PFOS-related compounds in the U.S., decided voluntarily in 2000 to cease global production of both PFOS and PFOA by the end of 2002
  - Significant New Use Rules (SNURs) in 2000/2 and 2007restricted return of phased-out PFOS, related perfluoroalkyl sulfonates (PFAS) to U.S. market
- PFOA Risk Assessment
  - Focus on potential for human health effects in the general U.S. population
  - In 2005, OPPT submitted a draft risk assessment to the Science Advisory Board (SAB) for public peer review; in 2006, SAB made recommendations to further develop the risk assessment
  - New information continues to be generated to address the toxicological uncertainties identified by the SAB; assessment will be revised as appropriate
- In August 2007, a U.S. Centers for Disease Control report showed significant reductions in human blood levels of PFOS and PFOA from 1999/2000 compared to the most recent data in 2003/2004 in a representative sample of the US population
  - The geometric mean for PFOA was reduced by 25% over this period; PFOS by 32%
  - Report concludes that these reductions most likely are related to the changes brought about by EPA efforts on these chemicals and other related efforts by government and industry

PFOA Stewardship Program: Overview

- In January 2006, EPA invited eight major companies in the fluoropolymer and fluorotelomer industries to commit to a voluntary program with global goals; companies accepted invitation by March 1, 2006
- Participating companies: Arkema, Asahi, Ciba, Clariant, Daikin, DuPont, 3M/Dyneon, Solvay Solexis
- Companies submitted baseline year data on emissions and product content in Oct 2006; progress reports in Oct. 2007
  - Report period: baseline year to end of 2006
  - Submitted both non-CBI and CBI reports
- Report annual progress toward goals each succeeding October

PFOA Stewardship Program: Goals

1. Commit to achieve, no later than 2010, 95% reduction in *both* facility emissions to all media *and* product content of PFOA, PFOA precursor chemicals, and related higher homologue chemicals, measured from a year 2000 baseline

2. Commit to working toward elimination of PFOA, PFOA precursors, and related higher homologue chemicals from emissions and products by 2015

- Program does not specify how goals are to be achieved
  - Corporate strategies included control/treatment technologies, process changes, product reformulation, new chemical development

PFOA Stewardship Program: Progress

- Reduction in emissions
  - 4 companies reported greater than 90% reductions of PFOA in U.S.
  - 5 companies reported greater than 74% reductions of PFOA outside U.S.
- Reduction in product content
  - Trend toward C8 alternatives
    - To date, companies have submitted over 50 new chemical alternatives to EPA for review under the PMN Program
    - 2006: Asahi introduced a new line of substitute telomer products that is free of PFOA and PFOA precursors
    - 2007: DuPont announced plans to "eliminate the need to make, buy or use PFOA by 2015"
    - 2007: 3M announced their intent to introduce in 2008 a PFOA substitute to be used in the manufacture of fluoropolymers
    - 2007: Daikin announced intentions to "stop manufacturing, using and selling PFOA and C8 telomer-based water and oil repellent products by the end of 2012"
- Significant reductions thus far put industry on target to meet the 95% reduction goal by 2010; additional reductions are anticipated in coming years

International Cooperation

- PFOS has also been restricted in the European Union, Canada, United Kingdom, Australia and other countries, and has been nominated for inclusion in POPs and LRTAP
- The U.S. invited Member countries of OECD and other countries to contemplate initiating similar action with regard to these chemicals in order to multiply and extend the benefits of the Stewardship Program
- During our review of PMNs, it has become apparent that a number of these alternatives have completed or are under review by other countries
  - Consideration of approaches for information exchange on new chemical notifications
  - One option is the OECD's Mutual Acceptance of Notifications (MAN) Process; open for OECD members and other countries interested in participating

Future

- The U.S. investigation is still ongoing; U.S. EPA has also taken both voluntary and regulatory chemical management activities intended to reduce releases of and exposures to these chemicals while the assessment process is underway
- The Stewardship Program will be the umbrella for ongoing and new activities on PFOA and related PFCs in the U.S.
- The U.S. expects other countries to consider similar PFC Stewardship Programs
- U.S. EPA encourages users to work with companies to make the transition to the safer PFOA/PFOS alternatives
- More information on EPA website: www.epa.gov/oppt/pfoa