

AR 226 - 1120



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

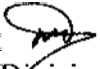
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SEP 23 2002

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Draft PFOA Exposure Data Gaps Discussion Document

FROM: Mary F. Dominiak 
Chemical Control Division

TO: Administrative Record File AR-226: PFOS, PFAS, PFOAs, Telomers, and Related Chemicals

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The attached document, identified as a Draft Exposure Data Gaps Document, For Discussion Purposes Only, dated August 30,2002, was developed by EPA at the request of the Fluoropolymer Manufacturing Group (FMG) and the Telomer Research Program (TRP) to help guide the discussion during a conference call arranged by FMG for September 12,2002. This draft document was shared with Lynne Harris of FMG and with Steve Korzeniowski of TRP prior to the call.

Please include this transmittal memo and draft document in the public Administrative Record file AR-226.

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BACKGROUND

Human blood monitoring data, coupled with what is currently understood about the hazards of PFOA is sufficient from EPA's perspective to generate concern about potential PFOA risks. Understanding the pathways (air, water, diet, etc.) and sources that lead to PFOA in human blood is a key to evaluating whether targeted actions have potential to successfully address these concerns. If questions remain regarding pathways and sources of PFOA contributing to blood levels, a logical next step, given the pervasiveness of exposures across the general population, is a detailed lifecycle assessment of commercial activities associated with PFOA, as well as chemicals that may degrade to PFOA, that leads to a materials accounting-type analysis may be necessary.

A set of exposure-related information gaps that would help to refine our ability to further evaluate and understand the situation with PFOA are outlined below. These information gaps are exemplary and not necessarily complete.

INTERPRETATION/ANALYSIS OF PFOA BLOOD DATA

What are the pathways (air/water/diet/etc) and sources of PFOA leading to blood levels?

Can speciation of blood monitoring data help identify PFOA pathways and sources? Are there perfluorinated precursors that upon biotic or abiotic transformations generate PFOA?

Blood data indicates that even very young children have PFOA levels. Since young children's environments are most likely residential, as compared to the additional environments (such as occupational settings) of older individuals, what are sources of PFOA contribute to children's exposures?

Higher levels of serum PFOA in non-worker populations may indicate an ongoing or recent exposure. What PFOA exposures would explain the ramifications of these data?

Given what is currently known, what are the most logical strategies to reduce PFOA blood levels?

General screen of other perfluorinated compounds in human blood?

Metabolism of PFOS and other chemicals to PFOA?

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SELECTED INFORMATION NEEDS FOR A COMPLETE LIFECYCLE ASSESSMENT OF PFOA

Physical/chemical Properties and Fate and Transport

A thorough understanding of PFOA's p-chem properties is critical in order to identify and evaluate exposure pathways. Relevant data pertaining to the persistence and transport properties of PFOA would contribute to the latter goal. Some areas of interest include:

direct photolysis in solution, gas phase and soils
atmospheric oxidation
reaction (reduction-oxidation) in soil/sediment;
adsorption/desorption
volatility from soil and water

PFOA Manufacturing, Processing and Industrial Use

Description of manufacturing, and processing technologies as well as uses? Is PFOA processed/used other than as a polymerization aide?

Sites/releases/sources (past, current and future)?

Waste streams? Disposal practices?

Exposure analysis (time, duration and extent of exposures usually estimated with dispersion calcs or monitoring data)?

Exposed populations?

PFOA Consumer Use

Description of uses and products?

releases/sources?

exposure analysis (time, duration and extent of exposures usually estimated with dispersion calcs or monitoring data)?

exposed populations?

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PFOA Treatment/Disposal Issues

What happens to PFOA and its products when they are disposed of? Are these compounds effectively destroyed during disposal and by what mechanism?

Are the breakdown of products which contain PFOA or related chemicals when they are disposed or destroyed via incineration or other processes significant sources of exposure? A detailed thermo-chemical analysis of PFOA and related chemicals could be informative.

Are there measured levels of PFOA in the atmosphere, from stack emissions, or resulting from adsorption onto particulate matter?

How does PFOA get into subsurface water (wells) outside Parkersburg, West Virginia?

How effective is removal of PFOA from drinking water with purification processes used in potable water plants?

Do power generation facilities that use the Tennessee River water inadvertently release the PFOA in their steam vents or from the cooling towers?

GENERATION OF PFOA FROM OTHER CHEMICALS SUCH AS TELOMERS AND POLYMERS

Manufacturer/Processing/Use/Disposal of Chemicals That May Degrade and Contribute to PFOA Blood Levels

Are there significant sources of PFOA outside its normal manufacturing/processing and use lifecycle?

Are there chemicals that biodegrade or photolyze in the environment to produce PFOA?

What are the conditions under which related chemicals can be transformed to PFOA?

How are PFOA precursors transported or distributed in the environment?

Are telomers a significant PFOA source?

Water surrounding poly TFE facilities is reported to be contaminated with PFOA at the ppb level. Why is this?

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