



# Toxicological Profile for Perfluoroalkyls

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U.S. Department of Health and Human Services  
Agency for Toxic Substances and Disease Registry

## **DISCLAIMER**

Use of trade names is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. Department of Health and Human Services.

## FOREWORD

This toxicological profile is prepared in accordance with guidelines\* developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Environmental Protection Agency (EPA). The original guidelines were published in the *Federal Register* on April 17, 1987. Each profile will be revised and republished as necessary.

The ATSDR toxicological profile succinctly characterizes the toxicologic and adverse health effects information for these toxic substances described therein. Each peer-reviewed profile identifies and reviews the key literature that describes a substance's toxicologic properties. Other pertinent literature is also presented, but is described in less detail than the key studies. The profile is not intended to be an exhaustive document; however, more comprehensive sources of specialty information are referenced.

The focus of the profiles is on health and toxicologic information; therefore, each toxicological profile begins with a relevance to public health discussion which would allow a public health professional to make a real-time determination of whether the presence of a particular substance in the environment poses a potential threat to human health. The adequacy of information to determine a substance's health effects is described in a health effects summary. Data needs that are of significance to the protection of public health are identified by ATSDR.

Each profile includes the following:

- (A) The examination, summary, and interpretation of available toxicologic information and epidemiologic evaluations on a toxic substance to ascertain the levels of significant human exposure for the substance due to associated acute, intermediate, and chronic exposures;
- (B) A determination of whether adequate information on the health effects of each substance is available or in the process of development to determine levels of exposure that present a significant risk to human health of acute, intermediate, and chronic health effects; and
- (C) Where appropriate, identification of toxicologic testing needed to identify the types or levels of exposure that may present significant risk of adverse health effects in humans.

The principal audiences for the toxicological profiles are health professionals at the Federal, State, and local levels; interested private sector organizations and groups; and members of the public.

This profile reflects ATSDR's assessment of all relevant toxicologic testing and information that has been peer-reviewed through September 2018. New studies were added in 2019 following public comment, and NHANES data were updated. Staff from the Centers for Disease Control and Prevention and other Federal scientists have also reviewed the profile. In addition, this profile has been peer-reviewed by a nongovernmental panel and was made available for public review. Final responsibility for the contents and views expressed in this toxicological profile resides with ATSDR.



Patrick N. Breyse, Ph.D., CIH  
Director, National Center for Environmental Health and  
Agency for Toxic Substances and Disease Registry  
Centers for Disease Control and Prevention

### \*Legislative Background

The toxicological profiles are developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA or Superfund). CERCLA section 104(i)(1) directs the Administrator of ATSDR to "...effectuate and implement the health related authorities" of the statute. This includes the preparation of toxicological profiles for hazardous substances most commonly found at facilities on the CERCLA National Priorities List (NPL) and that pose the most significant potential threat to human health, as determined by ATSDR and the EPA. Section 104(i)(3) of CERCLA, as amended, directs the Administrator of ATSDR to prepare a toxicological profile for each substance on the list. In addition, ATSDR has the authority to prepare toxicological profiles for substances not found at sites on the NPL, in an effort to "...establish and maintain inventory of literature, research, and studies on the health effects of toxic substances" under CERCLA Section 104(i)(1)(B), to respond to requests for consultation under section 104(i)(4), and as otherwise necessary to support the site-specific response actions conducted by ATSDR.

## VERSION HISTORY

Date	Description
May 2021	Final toxicological profile released
March 2020	Toxicological profile last updated
June 2018	Draft for public comment toxicological profile released
August 2015	Draft for public comment toxicological profile released
May 2009	Draft for public comment toxicological profile released

## CONTRIBUTORS & REVIEWERS

### CHEMICAL MANAGER TEAM

Melanie Buser, M.P.H. (Lead)	Lisa Ingerman, Ph.D., DABT
Dennis Jones, DVM, Ph.D.	Lynn Barber, M.S.
Hana R. Pohl, M.D., Ph.D.	Heather Carlson-Lynch, M.S., DABT
Patricia Ruiz, Ph.D.	Mario Citra, Ph.D.
Franco Scinicariello, M.D., M.P.H.	Gary L. Diamond, Ph.D.
Selene Chou, Ph.D.	Julie Klotzbach, Ph.D.
Henry Abadin, M.S.P.H.	Fernando T. Llados, Ph.D.
	Daniel J. Plewak, B.S.
ATSDR, Division of Toxicology and Human Health Sciences, Atlanta, GA	SRC, Inc., North Syracuse, NY

### REVIEWERS

#### **Interagency Minimal Risk Level Workgroup:**

Includes ATSDR; National Center for Environmental Health (NCEH); National Institute of Occupational Health and Safety (NIOSH); U.S. Environmental Protection Agency (EPA); National Toxicology Program (NTP).

#### **Additional reviews for science and/or policy:**

ATSDR, Division of Community Health Investigations; EPA; NCEH, Division of Laboratory Science.

### PEER REVIEWERS

1. Abby Benninghoff, Ph.D., Faculty Research Associate, Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, Oregon
2. Deborah A. Cory-Slechta, Ph.D., Professor of Environmental Medicine, Pediatrics and Public Health Sciences, Acting Chair, Department of Environmental Medicine, PI, NIEHS Center of Excellence, Department of Environmental Medicine, University of Rochester Medical Center, Rochester, New York
3. Jamie DeWitt, Ph.D., Associate Professor, Department of Pharmacology & Toxicology, Brody School of Medicine, East Carolina University, Greenville, North Carolina
4. Edward Emmett, M.D., Professor, Center of Excellence in Environmental Toxicology, University of Pennsylvania, Philadelphia, Pennsylvania
5. Lynn R. Goldman, M.D. M.P.H., Professor of Environmental Health Science, John Hopkins University, Baltimore, Maryland
6. William L. Hayton, Ph.D., Professor Emeritus, College of Pharmacy, Ohio State University, Columbus, Ohio
7. David A. Savitz, Ph.D., Professor of Epidemiology, Professor of Obstetrics and Gynecology, Brown University, Providence, Rhode Island

These experts collectively have knowledge of toxicology, chemistry, and/or health effects. All reviewers were selected in conformity with Section 104(I)(13) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended.

ATSDR scientists review peer reviewers' comments and determine whether changes will be made to the profile based on comments. The peer reviewers' comments and responses to these comments are part of the administrative record for this compound.

The listing of peer reviewers should not be understood to imply their approval of the profile's final content. The responsibility for the content of this profile lies with ATSDR.

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