Teflon and Human Health: Do the Charges Stick?

By ACSH Staff — March 18, 2005

Assessing the Safety of the Chemical PFOA

Project Coordinator: Rivka Weiser

Editor: Gilbert L. Ross, M.D.

The American Council on Science and Health gratefully acknowledges the comments and contributions of the following individuals, who reviewed all or part of the longer position paper on which this booklet is based:

Larry Beeson, Dr.P.H., Loma Linda University

Hinrich L. Bohn, Ph.D., University of Arizona

Joseph F. Borzelleca, Ph.D., Virginia Commonwealth University

John Doull, M.D., Ph.D., University of Kansas

Gordon W. Gribble, Ph.D., Dartmouth College

F. Peter Guengerich, Ph.D., Vanderbilt University School of Medicine

Theodore R. Holford, Ph.D., Yale University School of Medicine

Rudolph J. Jaeger, Ph.D., Environmental Medicine, Inc.

Manfred Kroger, Ph.D., Pennsylvania State University

Roger P. Maickel, Ph.D., Purdue University

Thomas H. Milby, M.D., Walnut Creek, CA

Ian C. Munro, Ph.D., Cantox Health Sciences International

Roy F. Spalding, Ph.D., University of Nebraska

Arlene Weiss, M.S., DABT, Environmental Medicine, Inc.

James J. Worman, Ph.D., Rochester Institute of Technology

Introduction and summary

Recently, the public has become concerned about the potential human health effects of PFOA (perfluorooctanoic acid or perfluorooctanoate), a chemical used to produce substances needed to manufacture Teflon and many other products. The Environmental Protection Agency (EPA) has
been reviewing the scientific data on PFOA and at press time for this publication was working on its final report about the human health effects associated with PFOA (the draft assessment was released in January 2005). In 2004, concerns about PFOA were widely reported in the media because the EPA claimed that DuPont, the manufacturer of Teflon, had not adequately reported information about PFOA's presence in water supplies and its ability to cross the placenta from mother to fetus. It is important to note that even while some media reports may have caused misunderstanding by calling PFOA a "Teflon chemical," PFOA is not present in the final product of Teflon-coated cookware; it is only used in the manufacturing process of the product.

While concerns about PFOA's effects on humans have arisen recently, data on PFOA's presence in humans and its effects on both animals and humans has been collected for more than 20 years and can be used to evaluate the potential for harm from PFOA. Research has shown that very high doses of PFOA can cause harm in animals, but the amount of PFOA to which the general population is exposed is hundreds to thousands of times lower, and biological differences may make concerns about some of the observed effects irrelevant to humans. Additionally, studies of workers (who are exposed to much higher doses of PFOA than the general population) have not shown the same effects in humans that occur in animals.

Table of Contents

I. Introduction and summary

II. What is PFOA?

III. How are humans exposed to PFOA?

IV. How much PFOA are people exposed to?
   A. Amount based on human blood levels of PFOA
   B. Amount based on water levels of PFOA

V. What do we know about the health effects of PFOA?
   A. From studies of animals
   B. From studies of humans

VI. Is the amount of PFOA that people are exposed to a cause for concern?
   A. Risk analysis based on blood PFOA levels
   B. Risk analysis based on administered doses of PFOA

VII. Conclusions

References
