1048-92-111 **Leona A Harris*** (harrisl@tcnj.edu), Department of Mathematics and Statistics, The College of New Jersey, 2000 Pennington Road, Ewing, NJ 08628, and **Hugh A Barton** (habarton@alum.mit.edu), Pharmacokinetics, Dynamics, and Metabolism, Pfizer Global Research and Development, Groton, CT 06340. *A Physiologically-Based Pharmacokinetic Model of a Perfluorinated Chemical Using Time-Dependent and Concentration-Dependent Changes in the Pharmacokinetic Parameters.*

Physiologically-based pharmacokinetic (PBPK) models describe the disposition of chemicals in the body following some external exposure to the body. These models are used to predict tissue and blood levels of a chemical over time and provide a framework for dose-response analyses needed to help assess the risk a chemical has on human health and the environment. The PBPK model presented here describes the fate of a perfluorinated chemical, perfluorooctane sulfonate (PFOS), in adult rats following intravenous, oral, and chronic dietary exposures. While this chemical has a variety of consumer and industrial applications, it has been shown to cause toxicity in adult and developing laboratory animals. This model was developed to characterize existing time-course data for PFOS and to better understand its pharmacokinetics in the body. Inconsistencies among single-dose and repeated-dose exposure scenarios were observed during the modeling process. This led to the use of time-dependent and concentration-dependent changes in the pharmacokinetic parameters in order to obtain reasonable predictions of the time-course data. We investigate the effects of changes in the model parameters on various model outputs. (Received February 01, 2009)