CHAPTER 1. RELEVANCE TO PUBLIC HEALTH

This toxicological profile on perfluoroalkyls discusses information on 14 perfluoroalkyl compounds that have been measured in the serum collected from a representative U.S. population 12 years of age and older in the National Health and Nutrition Examination Survey (NHANES) 2003–2004 (Calafat et al. 2007b), as well as 2 compounds (PFBA and PFHxA) that have been identified in other monitoring studies. These compounds include:

Perfluorobutyric acid (PFBA)
Perfluorohexanoic acid (PFHxA)
Perfluoroheptanoic acid (PFHpA)
Perfluorooctanoic acid (PFOA)
Perfluorononanoic acid (PFNA)
Perfluorodecanoic acid (PFDeA)
Perfluoroundecanoic acid (PFUA)
Perfluorobutane sulfonic acid (PFBuS)
Perfluorohexane sulfonic acid (PFHxS)
Perfluorooctane sulfonic acid (PFOS)
Perfluorododecanoic acid (PFDoA)
Perfluorooctane sulfonamide (PFOSA)
2-(N-Methyl-perfluorooctane sulfonamide) acetic acid (Me-PFOSA-AcOH)
2-(N-Ethyl-perfluorooctane sulfonamide) acetic acid (Et-PFOSA-AcOH)

The term "perfluoroalkyls" used throughout the toxicological profile is referring to these 14 compounds and the information may not be applicable to other perfluoroalkyl compounds.

1.1 OVERVIEW AND U.S. EXPOSURES

The perfluoroalkyl compounds discussed in this profile primarily consist of perfluorinated aliphatic carboxylic acids (PFCAs), perfluorinated aliphatic sulfonic acids (PFSAs), and some polyfluorinated substances that may degrade or be metabolized to some important perfluorinated substances such as PFOA or PFOS. These substances have been used extensively in surface coating and protectant formulations due to their unique surfactant properties (Kissa 2001; Schultz et al. 2003). Major applications have included protectants for paper and cardboard packaging products, carpets, leather products, and textiles that enhance water, grease, and soil repellency (3M 1999; Hekster et al. 2003; Kissa 2001; Schultz et al. 2003), and in firefighting foams (Schultz et al. 2003). Perfluoroalkyls such as PFOA have also been used as processing aids in the manufacture of fluoropolymers such as nonstick coatings on cookware (DuPont 2008; EPA 2008a).