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ACRONYMS AND ABBREVIATIONS

AAP	=	American Academy of Pediatrics
ADD	=	Average Daily Dose
AF	=	Adherence Factor
AIR	=	Acid Insoluble Residue
ANOVA	=	Analysis of Variance
ARS	=	Agricultural Research Service
ATSDR	=	Agency for Toxic Substances and Disease Registry
ATUS	=	American Time Use Study
BI	=	Bootstrap Interval
BMD	=	Benchmark Dose
BMI	=	Body Mass Index
BMR	=	Basal Metabolic Rate
BTM	=	Best Tracer Method
C	=	Contaminant Concentration
CARB	=	California Air Resources Board
CATI	=	Computer Assisted Telephone Interviewing
CDC	=	Centers for Disease Control and Prevention
CDS	=	Child Development Supplement
CHAD	=	Consolidated Human Activity Database
CI	=	Confidence Interval
cm ²	=	Square Centimeter
cm ³	=	Cubic Centimeter
CNRC	=	Children's Nutrition Research Center
CRITFC	=	Columbia River Inter-Tribal Fish Commission
CSFII	=	Continuing Survey of Food Intake by Individuals
CTFA	=	Cosmetic, Toiletry, and Fragrance Association
CV	=	Coefficient of Variation
DARLING	=	Davis Area Research on Lactation, Infant Nutrition and Growth
DIY	=	Do-it-yourself
DLW	=	Doubly Labeled Water
DONALD	=	Dortmund Nutritional and Anthropometric Longitudinally Designed
E or EE	=	Energy Expenditure
EBF	=	Exclusively Breastfed
ECG	=	Energy Cost of Growth
ED	=	Exposure Duration
EI	=	Energy Intake
EPA	=	Environmental Protection Agency
f _B	=	Breathing Frequency
FCID	=	Food Commodity Intake Database
FITS	=	Feeding Infant and Toddler Study
FQPA	=	Food Quality Protection Act
F/S	=	Food/Soil
g	=	Gram

GAF	=	General Assessment Factor
GLM	=	General Linear Model
H	=	Oxygen Uptake Factor
HEC	=	Human Equivalent Exposure Concentrations
HPV	=	High Production Volume
HR	=	Heart Rate
I	=	Tabulated Intake Rate
I_A	=	Adjusted Intake Rate
ICRP	=	International Commission on Radiological Protection
IEUBK	=	Integrated Exposure and Uptake Biokinetic Model
IFS	=	Iowa Fluoride Study
IOM	=	Institute of Medicine
IPCS	=	International Programme on Chemical Safety
IR	=	Intake Rate
IR_p	=	Intake Rate Percentile
IRIS	=	Integrated Risk Information System
KJ	=	Kilo Joules
KS	=	Kolmogorov-Smirnov
kg	=	Kilogram
L_1	=	Cooking or Preparation Loss
L_2	=	Post-cooking Loss
LADD	=	Lifetime Average Daily Dose
LTM	=	Limiting Tracer Method
m^2	=	Square Meter
m^3	=	Cubic Meter
mg	=	Milligram
MJ	=	Mega Joules
mL	=	Milliliter
METS	=	Metabolic Equivalents of Work
MSA	=	Metropolitan Statistical Area
N	=	Number of Subjects or Respondents
N_c	=	Weighted Number of Individuals Consuming Homegrown Food Item
N_T	=	Weighted Total Number of Individuals Surveyed
NAS	=	National Academy of Sciences
NCEA	=	National Center for Environmental Assessment
NCHS	=	National Center for Health Statistics
NERL	=	National Exposure Research Laboratory
NFCS	=	Nationwide Food Consumption Survey
NHANES	=	National Health and Nutrition Examination Survey
NHAPS	=	National Human Activity Pattern Survey
NHES	=	National Health Examination Survey
NHEXAS	=	National Human Exposure Assessment Survey
NIS	=	National Immunization Survey
NOAEL	=	No-observed-adverse-effect-level
NRC	=	National Research Council

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OPP	=	Office of Pesticide Programs
ORD	=	Office of Research and Development
PBPK	=	Physiologically-Based Pharmacokinetic
PDIR	=	Physiological Daily Inhalation Rate
PSID	=	Panel Study of Income Dynamics
RAGS	=	Risk Assessment Guidance for Superfund
RDD	=	Random Digit Dial
RfD	=	Reference Dose
RfC	=	Reference Concentration
RME	=	Reasonable Maximum Exposure
RQ	=	Respiratory Quotient
RTF	=	Ready to Feed
SA	=	Surface Area
SA/BW	=	Surface Area to Body Weight Ratio
SCS	=	Soil Contact Survey
SD	=	Standard Deviation
SDA	=	Soaps and Detergent Association
SE	=	Standard Error
SEM	=	Standard Error of the Mean
SES	=	Socioeconomic Status
SPC	=	Science Policy Council
SPS	=	Statistical Processing System
SRD	=	Source Ranking Database
TDEE	=	Total Daily Energy Expenditure
TFEI	=	Total Food Energy Intake
USDA	=	United States Department of Agriculture
USDL	=	United States Department of Labor
USDHHS	=	United States Department of Health and Human Services
UV	=	Ultraviolet
VO ₂	=	Oxygen Consumption Rate
VQ	=	Ventilatory Equivalent
VR	=	Ventilation Rate
W	=	Weight
w_i	=	Sample Weight Assigned to Observation x_i .
WHO	=	World Health Organization
WIC	=	USDA's Women, Infants, and Children Program
x_i	=	i^{th} observation

PREFACE

The Exposure Factors Program of the U.S. Environmental Protection Agency's (U.S. EPA's) Office of Research and Development (ORD) has three main goals: (1) provide updates to the *Exposure Factors Handbook* and the *Child-Specific Exposure Factors Handbook*; (2) identify exposure factors data gaps and needs in consultation with clients; and (3) develop companion documents to assist clients in the use of exposure factors data. The activities under each goal are supported by and respond to the needs of the various program offices.

The National Center for Environmental Assessment (NCEA) of the U.S. EPA's ORD has prepared this handbook to provide information on various physiological and behavioral factors commonly used in assessing children's exposure to environmental chemicals. Children have different exposure circumstances than do adults. Understanding these differences is key for evaluating potential for environmental hazards from pollutants. They consume more of certain foods and water and have higher inhalation rates per unit of body weight than adults. Young children play close to the ground and come into contact with contaminated soil outdoors and with contaminated dust on surfaces and carpets indoors. Ingestion of breast milk is another potential pathway of exposure for infants and young children.

NCEA published the *Exposure Factors Handbook* in 1997. That document includes exposure factors and related data on children, as well as adults. However, the U.S. EPA Program Offices identified the need to prepare a document specifically for children's exposure factors. The *Child-Specific Exposure Factors Handbook* is intended to fulfill this need.

This handbook was first offered to the public in 2002. Since that time, the U.S. EPA has incorporated updated data and revised the recommendations for several exposure factors and developed a standardized set of age categories to be used for children's exposure assessment. Where possible, the U.S. EPA has used this standard set of age categories to permit easier comparison of data among multiple sources and to allow consistency between different types of exposure factors.

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EXECUTIVE SUMMARY

This *Child-Specific Exposure Factors Handbook* has been prepared to focus on various factors used in assessing exposure, specifically for children ages 0 to <21 years old. This handbook provides nonchemical-specific data on exposure factors for the U.S. EPA recommended set of childhood age groups in the following areas:

- ingestion of water and other select liquids (Chapter 3);
- non-dietary ingestion factors (Chapter 4);
- ingestion of soil and dust (Chapter 5);
- inhalation rates (Chapter 6);
- dermal exposure factors such as surface area and adherence (Chapter 7);
- body weight (Chapter 8);
- intake of fruits and vegetables (Chapter 9);
- intake of fish and shellfish (Chapter 10);
- intake of meat, dairy products, and fats (Chapter 11);
- intake of grain products (Chapter 12);
- intake of home-produced foods (Chapter 13);
- total food intake (Chapter 14);
- human milk intake (Chapter 15);
- activity factors (Chapter 16); and
- consumer products (Chapter 17).

The *Child-specific Exposure Factors Handbook* was first published in 2002. Subsequently, recognizing that exposures among infants, toddlers, adolescents, and teenagers can vary significantly, the U.S. EPA published its *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005). To the extent possible, source data for the independent studies cited in the earlier version of this handbook were obtained and re-analyzed to conform to the standard age categories. This update and revision of the 2002 interim final *Child-specific Exposure Factors Handbook* is designed specifically to complement the U.S. EPA's recommended set of childhood age groups:

- Less than 12 months old: birth to <1 month, 1 to <3 months, 3 to <6 months, and 6 to <12 months.
- Greater than 12 months old: 1 to <2 years, 2 to <3 years, 3 to <6 years, 6 to <11 years, 11 to <16 years, and 16 to <21 years.

The data presented in this handbook have been compiled from various sources, which include the U.S. EPA's *Exposure Factor Handbook* (U.S. EPA, 1997), government reports, and information presented in the scientific literature. The data presented are the result of analyses by the individual study authors. However, in some cases the U.S. EPA has conducted analysis of published primary data to present results for the recommended age groups. Studies presented in this handbook were chosen because they were seen as useful and appropriate for estimating exposure factors based on the following considerations: (1) soundness (adequacy of approach and minimal or defined bias); (2) applicability and utility (focus on the exposure factor of interest, representativeness of the population, currency of the information, and adequacy of the data collection period); (3) clarity and completeness (accessibility, reproducibility, and quality assurance); (4) variability and uncertainty (variability in the population and uncertainty in the results); and (5) evaluation and review (level of peer review and number and agreement of studies). Overall confidence ratings of high, medium, or low were derived for the various exposure factors based on the evaluation of the elements described above.

Many scientific studies were reviewed for possible inclusion in this handbook. The handbook contains summaries of selected studies published through July 2008. Generally, studies were designated as "key" or "relevant" studies. Key studies were considered the most useful for deriving recommendations; while relevant studies provided applicable or pertinent data, but not necessarily the most important for a variety of reasons (e.g., data were outdated, limitations in study design). The recommended values for exposure factors are based on the results of key studies. The U.S. EPA's procedure for developing recommendations was as follows:

1. Key studies were evaluated in terms of both quality and relevance to specific populations (general U. S. population, age groups, gender, etc.). The criteria for assessing the quality of studies are described in Section 1.5.
 2. If only one study was classified as key for a particular factor, the mean value from that study was selected as the recommended central tendency value for that population. If multiple key studies with reasonably equal quality, relevance, and study design information were available, a weighted mean (if appropriate, considering sample size and other statistical factors) of the studies was chosen as the recommended mean value. If the key studies were judged to be unequal in quality, relevance, or study design, the range of means is presented and the user of this handbook should employ judgment in selecting the most appropriate value for the lifestage or local population of interest. Recommendations for upper percentiles, when multiple studies were available, were calculated as the midpoint of the range of upper percentile values of the studies for each age group where data were available.
 3. Aspects of exposure factors variability have been discussed. This document attempts to characterize the variability of each of the factors. Variability refers to true heterogeneity or diversity in a population. Differences among individuals in a population are referred to as inter-individual variability, differences for one individual over time is referred to as intra-individual variability. Since most of the studies used to derive exposure factors data are short term in nature, they present the variability in short term exposures across a population sample and often do not allow analysis of either inter-temporal variability within individuals nor inter-individual variability of long term average exposures. Inter-individual variability in this handbook is characterized in one or more of the following ways: (1) as a table with various percentiles or ranges of values; (2) as analytical distributions with specified parameters; and/or (3) as a qualitative discussion.
 4. Uncertainties were discussed in terms of data limitations, the range of circumstances over which the estimates were (or were not) applicable, possible biases in the values themselves, a statement about parameter uncertainties (measurement error, sampling error) and model or scenario uncertainties if models or scenarios were used to derive the recommended value.
 5. The U.S. EPA assigned a confidence rating of low, medium or high to each recommended value. This rating is not intended to represent an uncertainty analysis; rather, it represents the U.S. EPA's judgment on the quality of the underlying data used to derive the recommendation.
 6. Finally, the U.S. EPA developed a table for each exposure factor to summarize the recommended values for that factor. Table ES-1 summarizes key recommended values for the exposure factors included in this handbook. Additional recommendations and detailed supporting information can be found in the individuals chapters that address these factors.
- In the providing recommendations for the various exposure factors, an attempt was made to present percentile values that are consistent with the exposure estimators defined in *Guidelines for Exposure Assessment* (U.S. EPA, 1992) (i.e., mean, 50th, 90th, 95th, 98th, and 99.9th percentile). However, this was not always possible, because the data available were limited for some factors, or the authors of the study did not provide such information. It is important to note, however, that these percentiles

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were discussed in the guidelines within the context of risk descriptors and not individual exposure factors. For example, the guidelines state that the assessor may derive a high-end estimate of exposure by using maximum or near maximum values for one or more sensitive exposure factors, leaving others at their mean value. The term “upper percentile” is used throughout this handbook, and it is intended to represent values in the upper tail (i.e., between 90th and 99.9th percentile) of the distribution of values for a particular exposure factor.

Most of the data presented in this handbook are derived from studies that target (1) the general population (e.g., USDA food consumption surveys) or (2) a sample population from a specific area or group (e.g., soil ingestion study using children from the three-city area in southeastern Washington State). The decision as to whether to use site-specific or national values for an assessment may depend on the quality of the competing data sets as well as on the purpose of the specific assessment.

It is important to note that the recommended values were derived solely from the U.S. EPA’s interpretation of the available data. Different values may be appropriate for the user in consideration of policy, precedent, strategy, or other factors (e.g., more up-to-date data of better quality and more representative of the population of concern).

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Table ES-1. Summary of Recommended Exposure Factors for Children											
Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Ingestion of Drinking Water (mL/day) - See Chapter 3											
Mean per capita	184	227	362	360	271	317	380	447	606	731	826
95 th percentile per capita	839	896	1,056	1,055	837	877	1,078	1,235	1,727	1,983	2,540
Mean consumer only	470	552	556	467	308	356	417	480	652	792	895
95 th percentile consumer only	858	1,053	1,171	1,147	893	912	1,099	1,251	1,744	2,002	2,565
Ingestion of Drinking Water (mL/kg-day) - See Chapter 3											
Mean per capita	52	48	52	41	23	23	22	16	12	11	12
95 th percentile per capita	232	205	159	126	71	60	61	43	34	31	35
Mean consumer only	137	119	80	53	27	26	24	17	13	12	13
95 th percentile consumer only	238	285	173	129	75	62	65	45	34	32	35
Ingestion of Water while Swimming (mL/hour) - See Chapter 3											
Mean	-	-	-	-	-	-	-	-	50	-	20
Upper percentile	-	-	-	-	-	-	-	-	100	-	70
Hand-to-mouth Frequency (contacts/hour) - See Chapter 4											
Indoor	-	28	19	20	20	13	15	7	-	-	-
95 th percentile	-	65	52	63	63	37	54	21	-	-	-
Outdoor	-	-	15	14	14	5	9	3	-	-	-
95 th percentile	-	-	47	47	42	20	36	12	-	-	-
Object-to-mouth Frequency (contacts/hour) - See Chapter 4											
Mean	-	-	-	20	-	-	-	1	-	-	-
95 th percentile	-	-	-	-	-	-	-	-	-	-	-
Object-to-mouth Duration (minutes/hour) - See Chapter 4											
Mean	-	-	11	8	13	13	13	-	-	-	-
95 th percentile	-	-	26	22	16	16	16	-	-	-	-

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)											
Age Group	0 to <1	1 to <3	3 to <6	6 to <12	1 to <2	2 to <3	3 to <6	6 to <11	11 to <16	16 to <18	18 to <21
	mo.	mos.	mos.	mos.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
Soil/dust Ingestion (mg/day) - See Chapter 5											
Soil	-	-	30	30	-	-	-	50	-	-	-
Dust	-	-	30	30	-	-	-	60	-	-	-
Soil + Dust	-	-	60	60	-	-	-	100	-	-	-
Soil pica	-	-	-	-	-	-	-	1,000	-	-	-
Geophagy	-	-	-	-	-	-	-	50,000	-	-	-
Inhalation Rate - Long-term (m ³ /day) - See Chapter 6											
Mean	3.6	-	4.1	5.4	8.0	9.5	10.9	12.4	15.1	16.5	16.5
95 th percentile	7.1	-	6.1	8.1	12.8	15.9	16.2	18.7	23.5	27.6	27.6
Inhalation Rate - Short-term (m ³ /minute) - See Chapter 6											
Sleep/nap	Mean	3.0E-03	4.5E-03	4.6E-03	4.5E-03	4.6E-03	4.3E-03	4.5E-03	5.0E-03	4.9E-03	4.9E-03
	95 th percentile	4.6E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	5.8E-03	6.3E-03	7.4E-03	7.1E-03	7.1E-03
Sedentary	Mean	3.1E-03	4.7E-03	4.8E-03	4.7E-03	4.8E-03	4.8E-03	4.8E-03	5.4E-03	5.3E-03	5.3E-03
	95 th percentile	4.7E-03	7.6E-03	6.5E-03	6.5E-03	6.5E-03	5.8E-03	6.4E-03	7.5E-03	7.2E-03	7.2E-03
Light	Mean	1.1E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.4E-02	1.5E-02	1.7E-02	1.6E-02	1.6E-02
	95 th percentile	1.4E-02	2.1E-02	2.1E-02	2.1E-02	2.1E-02	2.1E-02	2.2E-02	2.5E-02	2.6E-02	2.6E-02
Moderate	Mean	2.3E-02	3.8E-02	3.8E-02	3.8E-02	3.8E-02	2.7E-02	2.9E-02	3.4E-02	3.7E-02	3.7E-02
	95 th percentile	4.1E-02	5.2E-02	5.2E-02	5.2E-02	5.2E-02	4.8E-02	4.2E-02	4.9E-02	4.9E-02	4.9E-02
Heavy	Mean	3.0E-03	4.5E-03	4.6E-03	4.5E-03	4.6E-03	4.3E-03	4.5E-03	5.0E-03	4.9E-03	4.9E-03
	95 th percentile	4.6E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	5.8E-03	6.3E-03	7.4E-03	7.1E-03	7.1E-03
Skin Surface Area - Total (m ²) - See Chapter 7											
Total Body	Mean	0.29	0.33	0.38	0.45	0.53	0.61	0.76	1.08	1.59	1.84
	95 th	0.34	0.38	0.44	0.51	0.61	0.70	0.95	1.48	2.06	2.33

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)											
Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Total Vegetable Intake (g/kg-day)^a - See Chapter 9											
Mean per capita			4.5		6.9		5.9	4.1		2.9	
95 th percentile per capita			15		17		15	9.9		6.9	
Mean consumer only			6.2		6.9		5.9	4.1		2.9	
95 th percentile consumer			16		17		15	9.9		6.9	
Fish and Shellfish Intake (g/kg-day)^a - See Chapter 10											
General Population											
Total Fish							0.43	0.28	0.23	0.16	
Mean per capita	-	-	-	-	-	-	3.0	1.9	1.5	1.3	-
95 th percentile per capita	-	-	-	-	-	-	4.2	3.2	2.2	2.1	-
Mean consumer only	-	-	-	-	-	-	10	8.7	6.2	6.6	-
95 th consumer	-	-	-	-	-	-					-
Marine							0.31	0.20	0.15	0.10	
Mean per capita	-	-	-	-	-	-	2.3	1.5	1.3	0.46	-
95 th percentile per capita	-	-	-	-	-	-	3.7	2.8	2.0	2.0	-
Mean consumer only	-	-	-	-	-	-	9.3	8.0	5.2	6.5	-
95 th percentile consumer	-	-	-	-	-	-					-
Freshwater							0.12	0.08	0.08	0.07	
Mean per capita	-	-	-	-	-	-	0.71	0.35	0.48	0.29	-
95 th percentile per capita	-	-	-	-	-	-	2.3	1.8	1.3	1.4	-
Mean consumer only	-	-	-	-	-	-	7.2	6.2	4.4	3.3	-
95 th percentile consumer	-	-	-	-	-	-					-
Recreational Marine - No age-specific recommendations; see Chapter 10.											
Recreational Freshwater - No age-specific recommendations; see Chapter 10.											
Native American - No age-specific recommendations; see Chapter 10.											

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)											
Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Total Meat Intake (g/kg-day)^a - See Chapter 11											
Mean per capita			1.2		4.1		4.1	2.9		2.1	
95 th percentile per capita			6.7		9.8		9.4	6.5		4.8	
Mean consumer only			3.0		4.2		4.2	2.9		2.1	
95 th percentile consumer			9.2		9.8		9.4	6.5		4.8	
Total Dairy Intake (g/kg-day)^a - See Chapter 11											
Mean per capita			13		37		23	14		5.6	
95 th percentile per capita			49		88		49	32		16	
Mean consumer only			16		37		23	14		5.6	
95 th percentile consumer			58		88		49	32		16	
Total Fat Intake (g/kg-day)^a - See Chapter 11											
Mean per capita			4.5		4.1		3.7	2.6		1.6	
95 th percentile per capita			16		8.2		7.0	4.2		3.0	
Mean consumer only			7.8		4.4		3.7	2.6		1.6	
95 th percentile consumer			16		8.3		7.0	4.2		3.0	
Total Grain Intake (g/kg-day)^a - See Chapter 12											
Mean per capita			2.5		6.4		6.3	4.3		2.5	
95 th percentile per capita			8.6		12		12	8.2		5.1	
Mean consumer only			3.6		6.4		6.3	4.3		2.5	
95 th percentile consumer			9.2		12		12	8.2		5.1	

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)

Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Home-produced Food Intake (g/kg-day)^b - See Chapter 13											
Fruits					8.7		4.1	3.6		1.9	
Mean	-	-	-	-	60.6	-	8.9	15.8	-	8.3	-
95 th percentile											
Vegetables					5.2		2.5	2.0		1.5	
Mean	-	-	-	-	19.6	-	7.7	6.2	-	6.0	-
95 th percentile											
Meats					3.7		3.6	3.7		1.7	
Mean	-	-	-	-	10.0	-	9.1	14.0	-	4.3	-
95 th percentile											
Fish					-		-	2.8		1.5	
Mean	-	-	-	-	-	-	-	7.1	-	4.7	-
95 th percentile											
Total Food Intake (g/kg-day) - See Chapter 14											
Mean per capita	20	16	28	56	90	74	61	40	24	18	
95 th percentile per capita	61	40	65	134	161	126	102	70	45	35	
Human Milk Intake (mL/day) - See Chapter 15											
Mean	510	690	770	620				NA			
Upper percentile	950	980	1,000	1,000				NA			
Human Milk Intake (mL/kg-day) - See Chapter 15											
Mean	150	140	110	83				NA			
Upper percentile	220	190	150	130				NA			
Lipid Intake from Human Milk (mL/day) - See Chapter 15											
Mean	20	27	30	25				NA			
Upper percentile	38	40	42	42				NA			

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)											
Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Lipid Intake from Human Milk (mL/kg-day) - See Chapter 15											
Mean	6.0	5.5	4.2	3.3				NA			
Upper percentile	8.7	8.0	6.0	5.2				NA			
Activity Factors - See Chapter 16											
Mean (minutes/day)											
Indoors, total	1,440	1,432	1,414	1,301	1,353	1,316	1,278	1,244	1,260	1,248	
Outdoors, total	0	8	26	139	36	76	107	132	100	102	
Indoors, at residence											
Mean	1,108	1,065	1,065	979	979	979	957	893	889	833	
95th	1,440	1,440	1,440	1,296	1,296	1,296	1,355	1,275	1,315	1,288	
Mean	15	20	-	22	22	22	17	18	18	20	
95th	-	-	-	44	44	44	34	41	40	45	
Mean	19	23	23	23	23	23	24	24	25	33	
95th	30	32	30	45	45	45	60	46	43	60	
Mean	18	43	53	53	53	53	60	67	67	83	
95th	-	121	121	121	121	121	121	121	121	-	
Mean	52	68	62	62	68	62	79	73	75	60	
95th	-	121	121	121	121	121	121	121	121	-	
Mean	33	56	47	47	56	47	63	63	49	30	
95th	-	121	121	121	121	121	121	121	120	-	
Mean (minutes/month)											
Swimming					105	116	137	151	139	145	
Mean	96	-	-	-	-	181	181	181	181	181	
95th	-	-	-	-	-	181	181	181	181	181	

Table ES-1. Summary of Recommended Exposure Factors for Children (Continued)

Age Group	0 to <1 mo.	1 to <3 mos.	3 to <6 mos.	6 to <12 mos.	1 to <2 yrs.	2 to <3 yrs.	3 to <6 yrs.	6 to <11 yrs.	11 to <16 yrs.	16 to <18 yrs.	18 to <21 yrs.
Consumer Products - See Chapter 17											
No age-specific recommendations; see Chapter 17.											
^a	Analysis was conducted using slightly different age groups than those recommended in <i>Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants</i> (U.S. EPA, 2005). Data were placed in the recommended age categories closest to those used in the analysis.										
^b	Analysis was conducted prior to Agency's issuance of <i>Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants</i> (U.S. EPA, 2005). Thus, age groups in the original study are slightly different than those presented here. See chapter for details.										
-	No data available and/or no recommendation made.										
NA	Not applicable.										

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The National Center for Environmental Assessment (NCEA), Office of Research and Development (ORD) was responsible for the preparation of this handbook. A draft of this document was prepared by the Exposure Assessment Division of Versar Inc. in Springfield, Virginia, under U.S. EPA Contract No. EP-W-04-035. Earlier versions (i.e., 2002 and 2005) were prepared under Contract Nos. 68-W-99-0041 and EP-W-04-035. The U.S. EPA/NCEA's Jacqueline Moya served as Work Assignment Manager for both the original and the revision, providing overall direction, technical assistance, and serving as contributing author. The draft was reviewed by U.S. EPA staff who have an interest in exposure factors as well as by an independent panel of outside experts.

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Acknowledgment

The authors wish to acknowledge the important contributions of the following U.S. EPA individuals who conducted additional analyses for the revisions of this handbook:

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