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APPENDIX D

Blood lead model assumptions

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IEUBK Modelling Input Parameters - Child Receptors

Parameter	Unit	Child Resident (0-1)	Child Resident (1-2)	Child Resident (2-3)	Child Resident (3-4)	Child Resident (4-5)	Child Resident (5-6)	Child Resident (6-7)	Source
Background Exposure Parameters									
Air									
Ratio of indoor dust lead concentration to corresponding outdoor concentration	%	30	30	30	30	30	30	30	IEUBK default value (US EPA 1989a)
Outdoor air dust lead concentration (constant value)	ug/m^3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	IEUBK default value (US EPA 1989a)
Daily time spent outdoors on-site (HIL A)	hr/day	1	2	3	4	4	4	4	IEUBK default value (US EPA 1989a) also consistent with data from Brinkman et al. (1999)
Daily time spent outdoors on-site (HIL B)	hr/day	1	1	1	1	1	1	1	HIL B Exposure Scenario
Daily time spent outdoors on-site (HIL C)	hr/day	1	2	2	2	2	2	2	HIL C Exposure Scenario, also considering data from Brinkman et al. (1999) for infants.
Lung absorption	%	32	32	32	32	32	32	32	IEUBK default value (US EPA 1989a)
Ventilation rate (HIL A, HIL B)	m^3/day	5.7	8.77	9.76	10.64	11.4	12.07	12.25	Mean inhalation rates as per US EPA (2008), as per Table 6-16.
Ventilation rate (HIL C)	m^3/day	18.7	18.7	18.7	23	23	23	23	Mean inhalation rates as per US EPA (2008) for short-duration exposures, moderate activity.
Diet									
Lead dietary intake (HIL A, HIL B, HIL C)	ug/day	5.1	5.8	6.7	3.2	3.6	4.1	4.7	Food Standards (2003), *The 20th Australian Total Diet Survey* , with conversion to ug/day using mean body weights from US EPA (2008).
Bioavailability of lead in food	unitless	0.5	0.5	0.5	0.5	0.5	0.5	0.5	IARC (2006)
Soil/Dust									
Outdoor soil lead concentration	ug/g	100	100	100	100	100	100	100	Arbitrary value
Indoor dust lead concentration (multiple source analysis) (HIL A & HIL B)	ug/g	70	70	70	70	70	70	70	Calculated by the IEUBK model using multiple source analysis to calculate lead concentration of indoor dust using a 70% contribution of soil to indoor dust.
Indoor dust lead concentration (multiple source analysis) (HIL C)	ug/g	0	0	0	0	0	0	0	HIL C Exposure Scenario has no building
Contribution of soil lead to indoor building dust lead	%	70	70	70	70	70	70	70	IEUBK default value (US EPA 1994)
Percent of total soil and dust ingestion that is soil	%	50	50	50	50	50	50	50	enHealth (2004)
Bioavailability of lead in soil/dust	%	50	50	50	50	50	50	50	IARC (2006)
Ingestion rate of soil and dust (HIL A)	g/day	0.032	0.1	0.1	0.1	0.1	0.1	0.1	As per exposure factors adopted for HIL C, NEPM B7
Ingestion rate of dust (HIL B)	g/day	0.008	0.025	0.025	0.025	0.025	0.025	0.025	As per exposure factors adopted for HIL C, NEPM B7
Ingestion rate of soil and dust (HIL C)	g/day	0.016	0.05	0.05	0.05	0.05	0.05	0.05	As per exposure factors adopted for HIL C, NEPM B7
Other									
Fraction passive/total accessible	unitless	0.2	0.2	0.2	0.2	0.2	0.2	0.2	IEUBK default value
Half saturation level	ug/day	100	100	100	100	100	100	100	IEUBK default value
Drinking Water									
Lead concentration in drinking water	ug/L	0.7	0.7	0.7	0.7	0.7	0.7	0.7	Average concentrations in SA drinking water, considered representative.
Bioavailability of lead in water	unitless	0.5	0.5	0.5	0.5	0.5	0.5	0.5	IARC (2006)
Water consumption	L/day	0.49	0.308	0.356	0.417	0.417	0.417	0.48	US EPA (2008) mean values
Background Lead Allocation									
Maternal blood lead concentration	ug/dL	1	1	1	1	1	1	1	IEUBK default value

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