

APPENDIX C

Model Physical and Chemical Properties

Table C.1 Site Input Parameters for the Hypothetical Lake

Parameter	Units	Value	Parameter Description	Rationale
1. GENERAL				
θ_{sw}	(mL water/ cm ³ soil)	0.2	Soil volumetric water content	Default of 0.2 considered appropriate (USEPA 2005)
Z _s	(cm)	10	Soil mixing zone depth	Recommended values range from 2 cm (unfurrowed) to 20 cm (furrowed); however, since some leaching of deposited particles will occur over the lifetime of the facility, a value of 10 cm is being used, consistent with the root uptake zone for vegetation.
BD	(g soil/ cm ³ soil)	1.5	Soil bulk density	Default of 1.5 considered appropriate (USEPA 2005)
F _w	(unitless)	0.6	Fraction of COPC wet deposition that adheres to plant surface	Recommended value for cations (such as metals) and organics (USEPA 2005)
T _{wk}	K	281	Water body temperature (Note Units)	Water body temperature based on mean Jan. to Dec. temperatures of 0,0,0,0,5,15,20,25,15,10,5,0 degrees C in Lake Simcoe, plus 273 to convert to degrees K.
θ	(unitless)	1.026	Temperature correction factor	Default of 1.026 considered appropriate (USEPA 2005)
u	(m/s)	0.000	Current velocity	Set to zero because lake - not used in Lake equation
C _d	(unitless)	0.0011	Drag coefficient	Default of 0.0011 considered appropriate (USEPA 2005)
W	(m/s)	4.08	Average annual wind speed	Environment Canada Climate Normals - nearest airport station - Toronto
ρ_w	(g/cm ³)	1	Density of water	Default of 1 considered appropriate (USEPA 2005)
k	(unitless)	0.4	von Karman's constant	Default of 0.4 considered appropriate (USEPA 2005)
μ_w	(g/cm-s)	0.0169	Viscosity of water corresponding to water temperature	Default of 0.0169 considered appropriate (USEPA 2005)
μ_a	(g/cm-s)	0.000181	Viscosity of air corresponding to air temperature	Default of 1.81E-4 considered appropriate (USEPA 2005)
C	(Unitless)	0.3	USLE cover management factor.	http://www.geography.uoguelph.ca/research/geog4480_w2004/Group02/table_2.html
PF	(Unitless)	1	USLE supporting practice factor.	The Ontario Ministry of Agriculture suggests a P factor value of 0.25 for strip contour cropping and a P factor of 1 for up and down slope practices http://www.geography.uoguelph.ca/research/geog4480_w2004/Group02/Obj_1.html
T _a	K	281.55	Ambient temperature (Note Units)	7.7°C from Environment Canada for Oshawa Station
ρ_{soil}	(g/cm ³)	2.7	Solids particle density	Default of 2.7 considered appropriate (USEPA 2005)
Bkg Factor	(1 - ON, 0 - Off)	0		This will toggle automatically, depending on Scenario chosen
Use Baseline Water Quality	(1 - ON, 0 - Off)	0		
Facility Parameters				
T ₁		0	Time period at the beginning of combustion	Combustion assumed to start at time 0
tD	(yr)	35	Time period over which deposition occurs (time period of combustion)	Same as the number of years of emissions used in the air quality modeling
T ₂	(yr)	35	Length of exposure duration	Assumed no averaging.... Most conservative.
Constants				
ρ_a	(g/m ³)	1200	Density of air	Default of 1200 considered appropriate (USEPA 2005)
R	(atm-m ³ / mol-K)	0.00008205	Universal gas constant	R is a constant
CLIMATE				
P	(cm/yr)	88	Average annual precipitation	Environment Canada climate normals Oshawa
I	(cm/yr)	0	Average annual irrigation	NA - not applicable
RO	(cm/yr)	13.8	Average annual surface runoff from pervious areas	Calculated as GW = Groundwater recharge = 15% Precipitation (till soil) So: RO = P - (0.15) P - Ev = 0.85 P - Ev
E _v	(cm/yr)	61	Average annual evapotranspiration	National Atlas of Canada provides evapotranspiration (inches/year). Value for the Durham/York regions are around 24 inches or 61 cm/year. Reference http://atlas.nrcan.gc.ca/site/english/maps/archives/4thedition/environment/climate/049_50
HYDROLOGY/HYDROGEOLOGY				
A _{W(Lake)}	(m ²)	1.00E+06	Lake surface area	Lake assumed to be one square kilometre (1,000,000 m ²)
A _{W(River)}	(m ²)	0	River surface area	n/a
A _I	(m ²)	0	Impervious watershed area receiving COPC deposition	Assumed to be zero
A _L	(m ²)	9.90E+07	Total watershed area receiving COPC deposition	Assumed to be 100 square kilometres (minus waterbody area) (99,000,000 m ²).
d _{z (River)}	(m)	0	Total water body depth (River)	n/a
d _{z (Lake)}	(m)	5.03	Total water body depth (Lake)	the sum of the water depth (dwc = 10 m) and the surface sediment layer thickness (dbs = 0.03 m)
λ_z	(unitless)	4	Dimensionless viscous sublayer thickness	Default of 4 considered appropriate (USEPA 2005)
K	ton/acre	0.02	USLE erodibility factor	http://www.geography.uoguelph.ca/research/geog4480_w2004/Group02/table_1.html

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Parameter	Units	Value	Parameter Description	Rationale												
RF	1/yr	122	USLE rainfall (or erosivity) factor	http://www.geography.uoquelp.ca/research/geog4480_w2004/Group02/Obj_2-3.html												
LS	(Unitless)	0.40	USLE length-slope factor.	http://www.geography.uoquelp.ca/research/geog4480_w2004/Group02/Obj_2-3.html												
a	(unitless)	1.2	Empirical intercept coefficient	Based on watershed area according to the following table (Do NOT interpolate) <table border="1"> <thead> <tr> <th>Watershed Area (sq. miles)</th> <th>a (unitless)</th> </tr> </thead> <tbody> <tr> <td>0.1</td> <td>2.1</td> </tr> <tr> <td>1 (>0.1 but <=1.0)</td> <td>1.9</td> </tr> <tr> <td>10 (>1.0 but <=10)</td> <td>1.4</td> </tr> <tr> <td>100 (>10 but <=100)</td> <td>1.2</td> </tr> <tr> <td>1000 (>100)</td> <td>0.6</td> </tr> </tbody> </table> Note: 1 sq. mile = 2.59E+06 m ²	Watershed Area (sq. miles)	a (unitless)	0.1	2.1	1 (>0.1 but <=1.0)	1.9	10 (>1.0 but <=10)	1.4	100 (>10 but <=100)	1.2	1000 (>100)	0.6
Watershed Area (sq. miles)	a (unitless)															
0.1	2.1															
1 (>0.1 but <=1.0)	1.9															
10 (>1.0 but <=10)	1.4															
100 (>10 but <=100)	1.2															
1000 (>100)	0.6															
b	(unitless)	0.125	Empirical slope coefficient	Default of 0.125 considered appropriate (USEPA 2005)												
V _{f(Lake)}	(m ³ /yr)	6831000	Average volumetric flow rate through water body (Lake)	Calculated as per HHRAP, pg. 4-9. Watershed area x 0.5 avg annual RO.												
V _{f(River)}	(m ³ /yr)	0	Average volumetric flow rate through water body (River)	n/a												
d _{wc(Lake)}	(m)	5.0	Depth of water column (in Lake)	(Assumed). Assumed to represent an average value for the entire year. Change cell 43 as well.												
d _{wc(River)}	(m)	0	Depth of water column (in River)	n/a												
d _{bs(Lake)}	(m)	0.03	Depth of upper benthic sediment layer (in Lake).	The US EPA recommended range is from 0.01 to 0.05 m, with a recommended value of 0.03 m.												
d _{bs(River)}	(m)	0	Depth of upper benthic sediment layer (in River).	n/a												
C _{BS}	(kg/L)	1.2	Bed sediment concentration (or bed sediment bulk density)	The US EPA suggested value from B-4-16 is 1.0. However, bed sediment concentration (or bed sediment bulk density) must by definition be greater than 1.0, since sediment sinks. Values for in-situ sediment bulk density depend upon the water content of the sediment (ranges from a minimum of about 0.35 for sands to 0.99 for organic fluffs), and the characteristics of the solid phase (minerals and organics). Feldspars and quartz, the minerals that provide the source material for many sands and clays, have a specific gravity of about 2.75. However, cellulose (the predominant parent of much organic matter in sediment) has a specific gravity of about 1.5. Based on an assumed farm pond sediment bulk sediment composition of 85% water, 10% mineral and 5% organic, the net bulk density is estimated to be ((0.85*1.0)+(0.05*1.5)+(0.10*2.75)) = 1.20 g/cm ³ . Practically speaking, most surface sediment bulk densities range from a low of about 1.1 to about 1.4 g/cm ³ .												
D _{ss(Lake)}	(m/yr)	1825	Suspended solids deposition rate	US EPA (2005) default value of 1,825 for quiescent lakes or ponds												
D _{ss(River)}	(m/yr)	0	Suspended solids deposition rate	n/a												
TSS _{(Lake) Measured}	(mg/L)	0	Total Suspended Solids	n/a												
TSS _{(River) Measured}	(mg/L)	0	Total Suspended Solids													
ρ _s	(kg/L)	2.33	Bed sediment density	Weighted average of 10% mineral (SG = 2.75) and 5% organic (SG = 1.5) = 2.33. US EPA default is 2.65												
OC _{sed}	(unitless)	0.05	Fraction of organic carbon in bottom sediment	assumed to be 0.05 for the farm pond. The US EPA suggested value from B-4-28 is 0.04, but sediment organic carbon content can range from 0.01 to 0.25, depending upon circumstances.												
Vegetation Uptake Factors																
R _{p(produce)}	(unitless)	0.982	Interception fraction of the edible portion of plant	Default of 0.982 considered appropriate (USEPA 2005)												
R _{p(fruit)}	(unitless)	0.053	Interception fraction of the edible portion of plant	Default of 0.053 considered appropriate (USEPA 2005)												
R _{p(forage)}	(unitless)	0.5	Interception fraction of the edible portion of plant	Default of 0.5 considered appropriate (USEPA 2005)												
R _{p(silage)}	(unitless)	0.46	Interception fraction of the edible portion of plant	Default of 0.46 considered appropriate (USEPA 2005)												
k _p	(1/yr)	18	Plant surface loss coefficient	Default of 18 considered appropriate (USEPA 2005)												
T _p	(yr)	0.164	Length of plant exposure to deposition per harvest of the edible portion of the ith plant group	Default of 0.164 considered appropriate (USEPA 2005)												
T _{p(forage)}	(yr)	0.12	Length of plant exposure to deposition per harvest of the edible portion of the ith plant group	Default of 0.12 considered appropriate (USEPA 2005)												
T _{p(silage)}	(yr)	0.16	Length of plant exposure to deposition per harvest of the edible portion of the ith plant group	Default of 0.16 considered appropriate (USEPA 2005)												
Y _{p(produce)}	(kg DW/m ²)	5.66	Yield or standing crop biomass of the edible portion of the plant (productivity)	Default of 5.66 considered appropriate (USEPA 2005)												
Y _{p(fruit)}	(kg DW/m ²)	0.252	Yield or standing crop biomass of the edible portion of the plant (productivity)	Default of 0.252 considered appropriate (USEPA 2005)												

Table C.1 Site Input Parameters for the Hypothetical Lake

Parameter	Units	Value	Parameter Description	Rationale
$Y_{P(\text{grass})}$	(kg DW/m ²)	0.15	Yield or standing crop biomass of the edible portion of the plant (productivity)	Default of 0.15 considered appropriate (USEPA 2005)
$Y_{P(\text{hay})}$	(kg DW/m ²)	0.5	Yield or standing crop biomass of the edible portion of the plant (productivity)	Default of 0.5 considered appropriate (USEPA 2005)
$Y_{P(\text{silage})}$	(kg DW/m ²)	0.8	Yield or standing crop biomass of the edible portion of the plant (productivity)	Default of 0.8 considered appropriate (USEPA 2005)
$VG_{\text{ag}(\text{forage})}$	(unitless)	1	Empirical correction factor for forage	Default of 1 considered appropriate (USEPA 2005)
$VG_{\text{ag}(\text{silage})}$	(unitless)	0.5	Empirical correction factor for silage	Default of 0.5 considered appropriate (USEPA 2005)
Tissue Conc. Uptake Factors				
$T_{\text{m}(\text{pasture})}$	(months)	6	Number of months per year a cow is set out to pasture and eating grass; the rest of the year is assumed to be eating hay	
$Q_{P(\text{forage-beef})}$	(kg DW plant/day)	8.8	Quantity of forage eaten by the animal per day	Default of 8.8 considered appropriate (USEPA 2005)
$Q_{P(\text{silage-beef})}$	(kg DW plant/day)	2.5	Quantity of silage eaten by the animal per day	Default of 2.5 considered appropriate (USEPA 2005)
$Q_{P(\text{grain-beef})}$	(kg DW plant/day)	0.47	Quantity of grain eaten by the animal per day	Default of 0.47 considered appropriate (USEPA 2005)
$Q_{P(\text{game})}$	(kg DW plant/day)	8.80	Quantity of forage eaten by the animal per day	USEPA 1993: equation 3-9 (herbivores)
$Q_{P(\text{forage-milk})}$	(kg DW/day)	13.2	Quantity of forage eaten by the dairy cattle per day	Default of 13.2 considered appropriate (USEPA 2005)
$Q_{P(\text{silage-milk})}$	(kg DW/day)	4.1	Quantity of silage eaten by the dairy cattle per day	Default of 4.1 considered appropriate (USEPA 2005)
$Q_{P(\text{grain-milk})}$	(kg DW/day)	3	Quantity of grain eaten by the dairy cattle per day	Default of 3.0 considered appropriate (USEPA 2005)
$Q_{P(\text{silage-pork})}$	(kg DW/day)	1.4	Quantity of silage eaten by the swine per day	Default of 1.4 considered appropriate (USEPA 2005)
$Q_{P(\text{grain-pork})}$	(kg DW/day)	3.3	Quantity of grain eaten by the swine per day	Default of 3.3 considered appropriate (USEPA 2005)
$Q_{P(\text{grain-chicken})}$	(kg DW plant/day)	0.2	Quantity of grain eaten by the chicken per day	Default of 0.2 considered appropriate (USEPA 2005)
$Q_{S(\text{beef})}$	(kg/day)	0.5	Quantity of soil eaten by the animal each day	Default of 0.5 considered appropriate (USEPA 2005)
$Q_{S(\text{game})}$	(kg/day)	0.15	Quantity of soil eaten by the animal each day	USEPA 1993: equation 3-9 (herbivores)
$Q_{S(\text{milk})}$	(kg/day)	0.4	Quantity of soil eaten by the dairy cattle each day	Default of 0.4 considered appropriate (USEPA 2005)
$Q_{S(\text{pork})}$	(kg/day)	0.37	Quantity of soil eaten by the swine day	Default of 0.37 considered appropriate (USEPA 2005)
$Q_{S(\text{chicken})}$	(kg/day)	0.022	Quantity of soil eaten by the chicken each day	Default of 0.022 considered appropriate (USEPA 2005)
$Q_{W(\text{beef})}$	(L/day)	38.53	Quantity of water ingested by the cow each day	USEPA 1993: equation 3-17 (domestic cattle)
$Q_{W(\text{pork})}$	(L/day)	5.075	Quantity of water ingested by the swine each day	USEPA 1993: equation 3-17 (domestic hog)
$Q_{W(\text{chicken})}$	(L/day)	0.142	Quantity of water ingested by the chicken each day	USEPA 1993: equation 3-15 (canada goose)
$Q_{W(\text{game})}$	(L/day)	6.049	Quantity of water ingested by the animal each day	USEPA 1993: equation 3-17 (mule deer)
$F_{(\text{forage})}$	(unitless)	1	Fraction of forage grown on contaminated soil and ingested by the animal	Default of 1.0 considered appropriate (USEPA 2005)
$F_{(\text{silage})}$	(unitless)	1	Fraction of silage grown on contaminated soil and ingested by the animal	Default of 1.0 considered appropriate (USEPA 2005)
$F_{(\text{grain})}$	(unitless)	1	Fraction of grain grown on contaminated soil and ingested by the animal	Default of 1.0 considered appropriate (USEPA 2005)
$F_{L(\text{beef})}$	(unitless)	1	Fraction of contaminated lake water ingested by the cow	
$F_{L(\text{pork})}$	(unitless)	1	Fraction of contaminated lake water ingested by the swine	
$F_{L(\text{chicken})}$	(unitless)	1	Fraction of contaminated lake water ingested by the chicken	
$F_{L(\text{game})}$	(unitless)	1	Fraction of contaminated lake water ingested by the animal	
$F_{R(\text{beef})}$	(unitless)	0	Fraction of contaminated river water ingested by the cow	
$F_{R(\text{pork})}$	(unitless)	0	Fraction of contaminated river water ingested by the swine	
$F_{R(\text{chicken})}$	(unitless)	0	Fraction of contaminated river water ingested by the chicken	
$F_{R(\text{game})}$	(unitless)	0	Fraction of contaminated river water ingested by the animal	
$\text{Fat Content}_{(\text{game})}$	(unitless)	0.1	Fat content in game	This cell is not used
f_{lipid}	(unitless)	0.07	Fish Lipid Content	Default of 0.07 considered appropriate (USEPA 2005)

Table C.2 Physical/Chemical Parameters for Benzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	5.60E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.58E+01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.26E+02	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.72E-03	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.72E-03	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	2.37E+00	HHRAP US EPA 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	2.37E+00	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.37E+00	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	2.37E+00	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.20E-01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	4.63E+00	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	2.47E+00	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	9.62E+00	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.38E-03	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.78E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.12E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.09E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.49E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.42E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.02E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	8.80E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	8.26E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.3 Physical/Chemical Parameters for Anthracene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	6.50E-05	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	5.50E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	3.16E+04	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.98E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	5.33E+01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	5.33E+01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	9.71E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	9.71E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	9.71E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	9.71E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	4.50E+03	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.76E+03	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	9.40E+02	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	6.78E+02	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.38E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.78E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.12E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.09E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.49E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.42E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.03E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.4 Physical/Chemical Parameters for Benzo(a)anthracene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.40E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.70E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.01E+05	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	4.83E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.93E+04	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.93E+04	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.97E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.97E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.97E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.97E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	6.00E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.69E+04	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.43E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	5.69E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.99E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.10E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	8.41E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.83E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.94E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.68E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.00E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	5.10E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	4.99E+04	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.5 Physical/Chemical Parameters for Benzo(a)pyrene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.10E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	5.50E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.00E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	2.94E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.25E+05	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.25E+05	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.32E-02	US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.32E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.32E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.32E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.60E+05	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.27E+04	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.88E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	9.68E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.76E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.98E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.91E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.55E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.77E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.58E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.00E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	4.30E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.33E+05	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.6 Physical/Chemical Parameters for Benzo(b)fluoranthene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.11E-04	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	4.10E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.33E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.66E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.68E+03	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.68E+03	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.12E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.12E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.12E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.12E-02	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.05E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.86E+04	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.19E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	1.21E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.62E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.90E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.62E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.38E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.67E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.52E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.06E+05	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.7 Physical/Chemical Parameters for Benzo(g,h,i)perylene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.25E-08	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	2.11E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.01E+06	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	2.94E-01	Same as Benzo(a)pyreneBased on Phys/Chem Properties
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.09E+09	calculated using EPISUITE Kow as per HHRAP US EPA, 2005. Eqn A-2-19, A-2-20
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.09E+09	calculated using EPISUITE Kow as per HHRAP US EPA, 2005. Eqn A-2-19, A-2-20
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	5.19E-03	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	5.19E-03	HHRAP US EPA, 2005 A-2-17
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	5.19E-03	HHRAP US EPA, 2005 A-2-17
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	5.19E-03	HHRAP US EPA, 2005 A-2-17
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.68E+04	calculated using Koc * foc - HHRAP US EPA 2005, A-2-10. Koc from EPI suite v3.12
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.01E+05	calculated using Koc * foc - HHRAP US EPA 2005, A-2-10. Koc from EPI suite v3.12
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.07E+05	calculated using Koc * foc - HHRAP US EPA 2005, A-2-10. Koc from EPI suite v3.12
RCF	Root concentration factor	(Unitless)	3.35E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.78E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.46E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	5.85E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.36E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.05E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.17E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	5.19E-06	HHRAP US EPA, 2005 Eqn A-2-5
D _a	Diffusivity of COPC in air	(cm ² /s)	4.48E-02	EPA HHRAP doc. Eqn A-2-4. MW = 276.34 (EPI SUITE v3.12)
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.33E+05	EPI Suite, 2007 BCF WINN
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.8 Physical/Chemical Parameters for Benzo(k)fluoranthene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	8.30E-07	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.20E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.26E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	2.73E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.11E+05	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.11E+05	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.15E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.15E-02	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.15E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.15E-02	Baes et al (1984)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.89E+05	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.44E+04	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.97E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	1.16E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.65E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.92E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.68E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.42E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.69E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.54E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.77E+05	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.9 Physical/Chemical Parameters for Chrysene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	9.50E-05	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	2.50E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.01E+05	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	7.44E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.92E+02	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.92E+02	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.97E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.97E-02	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.97E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.97E-01	HHRAP Database US EPA, 2005
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	6.00E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	3.01E+04	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.60E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	5.69E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.99E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.10E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	8.41E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.83E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.94E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.68E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	4.99E+04	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.10 Physical/Chemical Parameters for Dibenz(a,h)anthracene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.50E-08	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	2.70E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	3.16E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	5.50E-02	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.12E+07	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.12E+07	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.78E-03	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.78E-03	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	6.78E-03	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.78E-03	HHRAP Database US EPA, 2005
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	5.80E+05	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.34E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	7.16E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.35E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.10E-02	US EPA HHRAP 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.63E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.52E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.75E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.28E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.30E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	4.97E+05	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.11 Physical/Chemical Parameters for Indeno(1,2,3-cd)pyrene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.60E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.50E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	3.98E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	5.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.73E+05	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.73E+05	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	5.93E-03	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	5.93E-03	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	5.93E-03	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	5.93E-03	HHRAP Database US EPA, 2005
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	5.30E+05	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.31E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	5.30E+05	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.81E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.94E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.55E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.19E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.56E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.17E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.24E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.18E+05	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.12 Physical/Chemical Parameters for Naphthalene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	4.80E-04	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	5.27E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.00E+03	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.81E-01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.81E-01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.79E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.79E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.79E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.79E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.84E+01	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.38E+02	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	7.35E+01	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
RCF	Root concentration factor	(Unitless)	8.07E+01	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.48E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	7.81E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	3.13E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.80E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.09E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	6.25E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	7.50E-06	US EPA Water9
D _a	Diffusivity of COPC in air	(cm ² /s)	5.90E-02	US EPA Water9
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.93E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.13 Physical/Chemical Parameters for Phenanthrene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	2.30E-05	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.26E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.88E+04	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.99E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.37E+02	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.37E+02	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.02E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.02E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.02E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.02E-01	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.08E+02	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.56E+03	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	8.34E+02	calculated using EPI Suite Koc as per HHRAP US EPA, 2005
RCF	Root concentration factor	(Unitless)	6.31E+02	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.32E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.75E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.00E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.02E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.45E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.40E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E-02	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	US EPA Water9
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	US EPA Water9
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.03E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.14 Physical/Chemical Parameters for Aroclor 1254 (Total PCBs)

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.83E-04	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.00E-02	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	3.16E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.92E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.65E+03	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.65E+03	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.78E-03	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.78E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	6.78E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.78E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.45E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.84E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	9.81E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.35E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.10E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.63E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.52E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.75E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.28E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.30E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	0.00E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	2.00E+00	HHRAP Database US EPA, 2005
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.15 Physical/Chemical Parameters for 2,3,7,8-TCDD Equivalent

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.29E-05	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.00E-02	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	6.31E+06	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	6.64E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.55E+04	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.55E+04	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.55E-03	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.55E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.55E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.55E-03	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.89E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.92E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.56E+05	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	4.00E+04	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.61E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.37E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	5.50E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.16E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.92E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.10E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	5.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.04E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	0.00E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	9.00E-02	HHRAP Database US EPA, 2005
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.16 Physical/Chemical Parameters for Chloroform

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.70E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.00E+02	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.04E-03	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.04E-03	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	2.70E+00	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	2.70E+00	HHRAP US EPA, 2005 A-2-17
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.70E+00	HHRAP US EPA, 2005 A-2-17
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	2.70E+00	HHRAP US EPA, 2005 A-2-17
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	8.00E-02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	3.94E+00	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	2.10E+00	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	8.05E+00	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.90E-03	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.53E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.11E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.51E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.14E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.22E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.04E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.92E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.17 Physical/Chemical Parameters for Dichloromethane

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.20E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	9.03E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.00E+01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.16E-04	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.16E-04	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.86E+00	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.86E+00	HHRAP US EPA, 2005 A-2-17
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	6.86E+00	HHRAP US EPA, 2005 A-2-17
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.86E+00	HHRAP US EPA, 2005 A-2-17
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.40E-02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.50E-01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.00E-01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	8.64E+00	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	8.76E-04	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	4.61E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.84E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.06E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	6.45E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	3.69E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.17E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.01E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.00E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.18 Physical/Chemical Parameters for Formaldehyde

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.36E-07	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.61E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.24E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.92E-01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	3.92E-01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	8.38E+00	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	8.38E+00	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	8.38E+00	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	8.38E+00	HHRAP US EPA, 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.00E-02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.70E-01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	9.00E-02	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	6.74E+00	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.21E-04	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	6.34E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.54E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.46E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	8.88E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	5.08E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.98E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.78E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.16E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.19 Physical/Chemical Parameters for Tetrachloroethylene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	1.80E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	7.00E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.51E+03	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.30E-02	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.30E-02	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.20E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.20E-01	HHRAP US EPA, 2005 A-2-17
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.20E-01	HHRAP US EPA, 2005 A-2-17
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.20E-01	HHRAP US EPA, 2005 A-2-17
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.10E-01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.99E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.06E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	9.64E+01	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.63E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	8.58E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	3.43E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.97E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.20E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	6.87E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	8.50E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.20E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	8.28E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.20 Physical/Chemical Parameters for Vinyl Chloride

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.70E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.51E+01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.41E-05	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.41E-05	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.01E+00	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.01E+00	HHRAP US EPA, 2005 A-2-17
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	6.01E+00	HHRAP US EPA, 2005 A-2-17
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.01E+00	HHRAP US EPA, 2005 A-2-17
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.70E-02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.15E+00	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	6.20E-01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	9.09E+00	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.05E-03	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	5.55E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.22E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.28E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	7.76E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	4.44E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.23E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.06E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.39E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.21 Physical/Chemical Parameters for 1,2-Dichlorobenzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.90E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.40E+03	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.17E-01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.17E-01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.31E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.31E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.31E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.31E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.79E+00	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.84E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.52E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	9.30E+01	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.60E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	8.43E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	3.37E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.94E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.18E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	6.74E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	7.90E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	6.90E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	7.99E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.22 Physical/Chemical Parameters for 1,2,4-Trichlorobenzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.40E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.00E+04	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	7.27E-01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	7.27E-01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.89E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.89E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.89E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.89E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.60E+00	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.25E+02	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	6.64E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.79E+02	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.60E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.37E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	5.47E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.15E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.91E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.09E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	8.23E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	3.00E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.40E+02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.23 Physical/Chemical Parameters for 1,2,4,5-Tetrachlorobenzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.60E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	6.31E+04	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.78E+00	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.78E+00	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.51E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.51E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	6.51E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.51E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.10E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	5.68E+02	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.03E+02	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	1.15E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.75E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.97E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	7.89E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.54E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.76E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.58E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.43E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.24 Physical/Chemical Parameters for Pentachlorobenzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	7.10E-04	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	7.30E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.48E+05	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.52E+01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.52E+01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	3.98E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	3.98E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.98E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	3.98E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.21E+03	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	9.07E+03	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.84E+03	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.22E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	4.02E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.12E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	8.47E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.87E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.96E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.69E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	6.30E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	5.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	8.00E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.25 Physical/Chemical Parameters for Hexachlorobenzene

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.30E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.20E-01	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.00E+05	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.90E+01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	1.90E+01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	3.35E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	3.35E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.35E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	3.35E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.10E+02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	6.00E+03	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.20E+03	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	2.80E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	4.06E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.14E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	8.55E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.92E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.99E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.71E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	5.91E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	5.42E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.15E+04	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.26 Physical/Chemical Parameters for 2,4-Dichlorophenol

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.20E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.61E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	7.94E+02	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.14E+01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	2.14E+01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	8.16E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	8.16E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	8.16E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	8.16E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.90E-01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.10E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	5.88E+00	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	3.97E+01	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	9.75E-03	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	5.13E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.05E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.18E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	7.19E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	4.11E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.36E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.27 Physical/Chemical Parameters for 2,4,6-Trichlorophenol

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	7.80E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	3.61E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.01E+03	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.25E+01	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.25E+01	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	2.81E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	2.81E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.81E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	2.81E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	7.60E-01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.86E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.52E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	1.64E+02	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.10E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.11E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	4.42E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	2.54E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.55E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	8.85E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	5.61E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.28 Physical/Chemical Parameters for 2,3,4,6-Tetrachlorophenol

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	4.39E-06	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.41E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.82E+04	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.99E+02	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.99E+02	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.04E-01	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.04E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.04E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.04E-01	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.80E+00	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.10E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.12E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	6.20E+02	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.31E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.74E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.97E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.01E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.44E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.39E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.00E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.00E-03	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.75E+02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.29 Physical/Chemical Parameters for Pentachlorophenol

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.40E-08	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	1.42E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.26E+05	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.99E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.29E+05	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	6.29E+05	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.37E-02	HHRAP US EPA, 2005 Eqn A-2-17 where 1.15<Kow<9.35
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.37E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.37E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.37E-02	HHRAP US EPA 2005 Brag(veg) = Brag(fruit) = Brag(forage) = Brag(grain) = Brag(silage)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.20E+00	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	4.44E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	2.37E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	1.96E+03	HHRAP US EPA 2005 Eqn A-2-14 (for Kow >=2 , Kow<8.2) Eqn A-2-15 (for Kow <2 , Kow>-0.57)(87% moisture)
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.99E-02	HHRAP US EPA, 2005. Eqn A-2-21, A-2-23
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.10E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	8.40E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	4.83E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.94E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.68E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	6.10E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	5.60E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	3.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.45E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.30 Physical/Chemical Parameters for Antimony

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	2.50E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.37E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	5.16E-02	HHRAP US EPA, 2005 A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	3.00E-02	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	3.00E-02	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.00E-01	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	3.00E-02	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	4.50E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	4.50E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.50E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.00E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	5.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.11E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.21E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	7.37E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	4.21E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	4.00E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.31 Physical/Chemical Parameters for Arsenic

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	7.70E-01	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	4.79E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	6.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	6.33E-03	HHRAP Database US EPA, 2005
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.00E-03	HHRAP Database US EPA, 2005
Br _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	8.00E-03	HHRAP Database US EPA, 2005
Br _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.60E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.00E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	2.90E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	2.90E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	2.90E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.00E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.05E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	4.21E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	2.42E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.47E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	8.42E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.14E+02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.32 Physical/Chemical Parameters for Barium

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.00E+00	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.70E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	3.22E-02	HHRAP US EPA, 2005 A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.50E-02	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	1.50E-02	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.50E-01	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.50E-02	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	4.10E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	4.10E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.10E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.50E-04	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	7.89E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	3.16E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.82E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.11E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	6.32E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.33E+02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.33 Physical/Chemical Parameters for Beryllium

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	1.50E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	2.69E-01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	2.58E-03	HHRAP US EPA, 2005 A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.50E-03	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	1.50E-03	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	1.00E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.50E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	7.90E+02	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.90E+02	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	7.90E+02	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.00E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	5.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.11E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.21E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	7.37E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	4.21E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.57E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.20E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.34 Physical/Chemical Parameters for Boron

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.45E-02	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.69E+00	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	No value - assumed zero because inorganic
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	2.25E+00	HHRAP US EPA, 2005 A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	2.00E+00	Baes et al (1984)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	2.00E+00	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.00E+00	Baes et al (1984)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	2.00E+00	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.00E+00	Baes et al (1984)
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	3.00E+00	Baes et al (1984)
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.00E+00	Baes et al (1984)
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	6.00E-04	Baes et al (1984)
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	3.16E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	7.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	4.42E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	2.53E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	4.50E-05	Based on calculations indicated in HHRAP US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	3.89E-01	Based on calculations indicated in HHRAP US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.16E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.35 Physical/Chemical Parameters for Cadmium

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.10E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.00E+01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.25E-01	HHRAP Database US EPA, 2005
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.20E-02	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	6.40E-02	HHRAP Database US EPA, 2005
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.64E-01	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.20E-02	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	7.50E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	7.50E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	7.50E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	1.20E-04	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	6.32E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	2.53E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.45E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	8.84E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	5.05E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	9.07E+02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.36 Physical/Chemical Parameters for Chromium

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.45E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.70E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	4.88E-03	HHRAP Database US EPA, 2005
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	4.50E-03	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	4.50E-03	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	7.50E-03	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	4.50E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.90E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.90E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.90E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	5.50E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.89E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.16E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	6.66E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	4.05E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	2.32E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	1.41E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.30E-01	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	1.90E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.37 Physical/Chemical Parameters for Cobalt

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	2.45E-02	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.69E+00	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	No value - assumed zero because inorganic
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	8.65E-03	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	7.00E-03	Baes et al. 1984
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	7.00E-03	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.00E-02	Baes et al. 1984
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	7.00E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	4.50E+01	Baes et al. 1984
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	4.50E+01	Baes et al. 1984
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	4.50E+01	Baes et al. 1984
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.00E-02	Baes et al. 1984
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.05E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	4.21E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	2.42E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.47E-02	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	8.42E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.57E-06	US EPA WATER9
D _a	Diffusivity of COPC in air	(cm ² /s)	7.72E-02	US EPA WATER9
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.16E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.38 Physical/Chemical Parameters for Lead

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.50E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.37E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	7.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.36E-02	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	9.00E-03	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	9.00E-03	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.50E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	9.00E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	9.00E+02	Baes et al (1984)
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	9.00E+02	Baes et al (1984)
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	9.00E+02	Baes et al (1984)
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.00E-04	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.58E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.32E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.63E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.21E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	9.00E-02	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.39 Physical/Chemical Parameters for Mercury - Elemental

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	7.10E-03	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	4.17E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	1.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	0.00E+00	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	NA	
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	NA	
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	NA	
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	NA	
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.00E+03	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.00E+03	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.00E+03	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	0.00E+00	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	0.00E+00	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	0.00E+00	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	0.00E+00	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	0.00E+00	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	0.00E+00	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	3.01E-05	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	1.09E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	0.00E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.40 Physical/Chemical Parameters for Mercury - Inorganic

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm-m ³ /mol)	1.29E-05	H = Vp(atm) * MW (g/mol) /Solubility (g/m3)Vp = 0.00171 (atm)MW = 271.52 (g/mol)Solubility = 36000 (g/m3)
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	6.10E-01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	8.50E-01	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	HHRAP Database US EPA, 2005
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	HHRAP Database US EPA, 2005
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.23E-01	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	9.30E-03	HHRAP Database US EPA, 2005
Br _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	3.60E-02	HHRAP Database US EPA, 2005
Br _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	9.00E-01	Baes et al. 1984
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	9.30E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	5.80E+04	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.00E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	5.00E+04	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	5.22E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.75E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.10E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	6.32E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	3.85E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	2.20E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	5.25E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	4.53E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	5.00E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.41 Physical/Chemical Parameters for Methyl Mercury

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	4.70E-07	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.20E+00	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.31E-01	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.90E-02	HHRAP Database US EPA, 2005
Br _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	9.90E-02	HHRAP Database US EPA, 2005
Br _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	9.00E-01	Baes et al. 1984
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.90E-02	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	7.00E+03	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.00E+05	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.00E+03	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	7.80E-04	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	4.11E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.64E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	9.44E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	5.75E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	3.28E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	6.11E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	5.28E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	6.80E+06	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.42 Physical/Chemical Parameters for Nickel

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.50E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.00E+01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	9.31E-03	HHRAP Database US EPA, 2005
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	6.00E-03	HHRAP Database US EPA, 2005
Br _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	8.00E-03	HHRAP Database US EPA, 2005
Br _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.20E-02	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	6.00E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	6.50E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	6.50E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	6.50E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	6.00E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	3.16E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.26E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	7.26E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	4.42E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	2.53E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	7.80E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.43 Physical/Chemical Parameters for Phosphorous

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.44E-02	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	5.37E-01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	Calculated
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	3.50E+00	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	3.50E+00	Baes et al (1984)
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	3.50E+00	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	3.50E+00	Baes et al (1984)
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	3.50E+00	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	3.50E+00	Baes et al (1984)
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	3.50E+00	Baes et al (1984)
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	3.50E+00	Baes et al (1984)
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	5.50E-01	Baes et al (1984)
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	2.89E-01	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.16E-01	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	6.66E-01	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	4.05E-01	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	2.32E-01	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.57E-06	US EPA WATER9
D _a	Diffusivity of COPC in air	(cm ² /s)	7.72E-02	US EPA WATER9
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.16E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.44 Physical/Chemical Parameters for Silver

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.45E-02	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.70E+00	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	9.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	1.38E-01	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	1.00E-01	HHRAP Database US EPA, 2005
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	1.00E-01	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	4.00E-01	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	1.00E-01	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	8.30E+00	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	8.30E+00	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	8.30E+00	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	3.00E-03	HHRAP Database US EPA, 2005
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.58E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	6.32E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.63E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	2.21E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.26E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.60E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.70E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	8.77E+01	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.45 Physical/Chemical Parameters for Vanadium

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	3.29E-15	EPI Suite, V3.12 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	1.70E+00	EPI Suite, V3.12 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	0.00E+00	No value - assumed zero because inorganic
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	3.32E-03	HHRAP US EPA, 2005 eqn. A-2-19
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	3.00E-03	Baes et al. 1984
Bf _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	3.00E-03	Same as Brag (Fruit)
Bf _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	5.50E-03	Baes et al. 1984
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	3.00E-03	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	1.00E+03	Baes et al., 1984
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	1.00E+03	Baes et al., 1984
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	1.00E+03	Baes et al., 1984
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	2.50E-03	Baes et al., 1984
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	1.32E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	5.26E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	3.03E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	1.84E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	1.05E-03	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.57E-06	US EPA WATER9
D _a	Diffusivity of COPC in air	(cm ² /s)	7.72E-02	US EPA WATER9
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	3.16E+00	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005

Table C.46 Physical/Chemical Parameters for Zinc

Variable	Definition	Units	Value	Reference
H	Henry's Law constant	(atm·m ³ /mol)	2.50E-02	HHRAP Database US EPA, 2005
k _{sg}	Soil loss constant due to biotic and abiotic degradation	(1/yr)	0.00E+00	HHRAP Database US EPA, 2005
K _{ow}	Octanol-water partitioning coefficient	(unitless)	3.39E-01	HHRAP Database US EPA, 2005
F _v	Fraction of COPC air concentration in vapor phase	(unitless)	8.00E-03	HHRAP Database US EPA, 2005
BV _{ag}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
BV _{forage}	Air-to-plant biotransfer factor	(mg COPC/g DW plant) / (mg COPC/g air)	NA	
Br _{ag (Veg)}	Plant-soil bioconcentration factor for produce	(Unitless)	9.70E-02	HHRAP Database US EPA, 2005
Br _{ag (Fruit)}	Plant-soil bioconcentration factor for fruit	(Unitless)	5.40E-02	HHRAP Database US EPA, 2005
Br _{rootveg (metals only)}	Plant-soil bioconcentration factor for belowground produce	(Unitless)	9.00E-01	HHRAP Database US EPA, 2005
Br _{forage}	Plant-soil bioconcentration factor for forage	(Unitless)	2.50E-01	HHRAP Database US EPA, 2005
Br _{grain}	Plant-soil bioconcentration factor for grain	(Unitless)	5.40E-02	Same as Brag (Fruit)
Kd _s	Soil-water partition coefficient	(L/kg);(cm ³ /g)	6.20E+01	HHRAP Database US EPA, 2005
Kd _{sw}	Suspended sediments/surface water partition coefficient	(L water/kg suspended sediment)	6.20E+01	HHRAP Database US EPA, 2005
Kd _{bs}	Bed sediment/sediment pore water partition coefficient	(L water/kg bottom sediment)	6.20E+01	HHRAP Database US EPA, 2005
RCF	Root concentration factor	(Unitless)	NA	
Ba _{beef}	Biotransfer factor for beef	(day/kg FW tissue)	9.00E-05	Baes et al (1984)
Ba _(game)	Biotransfer factor for game meat	(day/kg FW tissue)	4.74E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{milk}	Biotransfer factor for milk	(day/kg WW tissue)	1.89E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{pork}	Biotransfer factor for pork	(day/kg FW tissue)	1.09E-04	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{chicken}	Biotransfer factor for chicken	(day/kg FW tissue)	6.63E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
Ba _{egg}	Biotransfer factor for eggs	(day/kg FW tissue)	3.79E-05	extrapolated from Ba beef based on relative fat content: game = 10% milk = 4% pork = 23% chicken = 14% egg = 8%
MF	Metabolic factor	(unitless)	1.00E+00	HHRAP US EPA 2005 0.01 for bis(2-ethylhexyl)phthalate and PAHs, 1.0 for all other
D _w	Diffusivity of COPC in water	(cm ² /s)	9.57E-06	HHRAP Database US EPA, 2005
D _a	Diffusivity of COPC in air	(cm ² /s)	7.72E-02	HHRAP Database US EPA, 2005
ER	Soil enrichment ratio	(unitless)	1.00E+00	HHRAP Database US EPA, 2005 - 3 for organics, 1 for inorganics
BCF _{fish} or BAF _{fish}	Bioconcentration factor/bioaccumulation factor for COPC in fish	(L/kg FW tissue)	2.06E+03	HHRAP Database US EPA, 2005
BSAF	Biota-to-sediment accumulation factor	(unitless)	NA	
Bs	Soil bioavailability factor	(unitless)	1.00E+00	HHRAP Database US EPA, 2005