Appendix D Symbols, indices and compartment acronyms used for parameter and process description

In this Appendix, the symbols used in documenting equations are defined and described. Note that the symbols found in this part of the Appendix have not been used in section A.1 which is on the description of the overall matrix computations.

Table D-1 describes the symbols following the rule that for each symbol there is only one unit permitted. Table D-2 lists the dependencies as given in parentheses. These depend on the table (i.e., the necessary fields to be specified in order to define a value, 'degrees of freedom') in which the respective parameter is stored. Table D-3 shows the acronyms used for the compartments.

When defining the parameters in the database indices in parameter symbols are denoted by square brackets. These indices specify the context of a parameter more clearly when necessary.

In case the parameter is a value relating two values of the same unit (fractional value) the declaration in square brackets first states the numerator followed by a slash ('/') and then the denominator term.

Table D-1: Symbols and corresponding unique units used

Symbol	Name	Unit
aux	auxiliary parameter (e.g., for intermediate calculations)	variable
A	area	m^2
ATMDEP	atmospheric deposition	$kg/m^2/s$
BCF_dw/dw	bioconcentration factor in dry weight per dry weight	kg dry weight per kg dry weight
BCF_dw/fw	bioconcentration factor in dry weight per fresh weight	kg dry weight per kg fresh weight
BCF_V/fw	bioconcentration factor in volume per fresh weight	m^3/kg fresh weight
BW	body weight	kg per person
β_{ED10}	slope factor based on effective dose affecting 10 % of a population over background	individual lifetime risk per mg/kg Body Weight/day
C_w/v	concentration in weight per volume	kg/m^3
C_w/fw	concentration in weight per fresh weight	kg/kg FW of medium
C_w/dw	concentration in weight per dry weight	kg/kg DW of medium
$C\_w/w_{phase\ x}$	concentration in weight per weight of phase x	kg/kg of phase x
d	depth	m
DALY	Disability Adjusted Life Years	years lost-equivalents (per incidence)
ED	equilibrium distribution relating bulk concentration to single phase concentration	kg/m^3 bulk per kg/m^3 phase

Table D-1: Symbols and corresponding unique units used

Symbol	Name	Unit
emp	empirical factor	(variable, only theoretical)
FCTF_t/v	food chain transfer factor in time per volume	s/m^3
FCTF_t/w	food chain transfer factor in time per weight	s/kg
fr_A	area fraction	-
fr_Q	discharge fraction	-
fr_r	fraction of a receptor belonging to a subgroup (e.g., risk groups within a population)	-
fr_v	'velocity' fraction, i.e., $m^3/m^2/s$ affected volume per $m^3/m^2/s$ bulk	-
fr_V	volume fraction	-
fr_w	mass fraction	-
H	Henry's law constant	$Pa \cdot m^3/mol$
IF	Intake Fraction	-
ING	intake rate (or ingestion) of, e.g., food and feed, but also soil per head (= caput)	kg fresh weight/ capita/s
INH	inhalation rate per head (= caput)	m^3/capita/s
IR	intake rate of, e.g., food and feed, but also soil (overall, aggregated)	kg/s
IR_p	personal intake rate	kg/capita/s
k	process rate in the environmental fate matrix	m^3/s
K_{ow}	n-octanol water partition coefficient	-
K_{sw} (or K_d)	solid-water partition coefficient	m^3/kg
ln(2)	natural logarithm of 2	-
M	mass	kg
MW	molecular weight	kg/mol

Table D-1: Symbols and corresponding unique units used

Symbol	Name	Unit
P	production, e.g., of food	kg fresh weight/s
pH	negative common logarithm of the hydronium ion activity	-
Q	discharge	m^3/s
R	universal or molar gas constant	$Pa \cdot m^3/mol/K$
r	rate	1/s
rho or ρ	density	kg/m^3
S	source strength, emission rate	kg/s^a
SOL	solubility	kg/l
T	temperature	K
t	time	s^a
V	volume	m^3
v	velocity	m/s
Y_dw	Yield based on dry weight	kg dry weight per m^2
Y_fw	Yield based on fresh weight	kg fresh weight per m^2
YLD	Years of Life lived with a Disability	years lost-equivalents (per incidence)
YOLL	Years of Life Lost	years lost (per incidence)

a. There are instances in this document where the time is given in years and not in seconds.

Table D-2: Symbols used to show degrees of freedom. Symbols occur in parentheses or as indices

Symbol	Meaning
c	compartment or compartment group
d	dependency on other parameters (e.g., pH)
e	exposure framework
i	impact or effect (type)
n	nation or other administrative unit
p	pollutant, substance
r	receptor
s	scenario
t	time
z	zone or (base) region

Table D-3: Compartment acronyms employed

Compartment	Acronym
air	a
freshwater body	w
freshwater sediment	ws
groundwater	gw
glacier	gl
impervious surface (**u**rban/built-up area)	u
(**b**are or) non-vegetated land	b
(semi-) **n**atural ecosystems	n
pasture/grassland	p
arable (or **ag**ricultural) land	ag