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A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture

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DEPARTMENT OF ENERGY

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ORNL-5786

Health and Safety Research Division

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Date Published: September 1984

Research sponsored by the Office of Radiation Programs, U. S. Environmental Protection Agency under Interagency Agreement AD-89-F-2-A106 (formerly EPA-78-D-X0394).

Prepared by the
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
operated by
Martin Marietta Energy Systems, Inc.
for the
U. S. DEPARTMENT OF ENERGY
under contract No. DE-AC05-84OR21400

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Although the research described in this report has been funded by the United States Environmental Protection Agency through Interagency Agreement Number AD-89-F-2-A106 (formerly EPA-78-D-X0394) with Oak Ridge National Laboratory, it has not been subjected to the Agency's required peer and policy review and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred.

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	I A	II A	III B	IV B	V B	VI B	VII B	VIII			I B	II B	III A	IV A	V A	VI A	VII A
II	Li 0.025	Be 0.010											B 4.0		N 30		F 0.060
III	Na 0.075	Mg 1.0											Al 4.0×10^{-3}	Si 0.35	P 3.5	S 1.5	Cl 70
IV	K 1.0	Ca 3.5	Sc 6.0×10^{-3}	Ti 5.5×10^{-3}	V 5.5×10^{-3}	Cr 7.5×10^{-3}	Mn 0.25	Fe 4.0×10^{-3}	Co 0.020	Ni 0.060	Cu 0.40	Zn 1.5	Ga 4.0×10^{-3}	Ge 0.40	As 0.040	Se 0.025	Br 1.5
V	Rb 0.15	Sr 2.5	Y 0.015	Zr 2.0×10^{-3}	Nb 0.020	Mo 0.25	Tc 9.5	Ru 0.075	Rh 0.15	Pd 0.15	Ag 0.40	Cd 0.55	In 4.0×10^{-3}	Sn 0.030	Sb 0.20	Te 0.025	I 0.15
VI	Cs 0.080	Ba 0.15		Hf 3.5×10^{-3}	Ta 0.010	W 0.045	Re 1.5	Os 0.015	Ir 0.055	Pt 0.095	Au 0.40	Hg 0.90	Tl 4.0×10^{-3}	Pb 0.045	Bi 0.035	Po 2.5×10^{-3}	At 1.0
VII	Fr 0.030	Ra 0.015															

Lanthanides	La 0.010	Ce 0.010	Pr 0.010	Nd 0.010	Pm 0.010	Sm 0.010	Eu 0.010	Gd 0.010	Tb 0.010	Dy 0.010	Ho 0.010	Er 0.010	Tm 0.010	Yb 0.010	Lu 0.010
Actinides	Ac 3.5×10^{-3}	Th 8.5×10^{-4}	Pa 2.5×10^{-3}	U 8.5×10^{-3}	Np 0.10	Pu 4.5×10^{-4}	Am 5.5×10^{-3}	Cm 8.5×10^{-4}							

Key: Li 0.025 — Symbol; — Transfer Coefficient, B_v

Figure 2.1. Values of the soil-to-plant concentration factor B_v adopted as default estimates in the computer code TERRA.

	I A	II A	III B	IV B	V B	VI B	VII B	VIII			I B	II B	III A	IV A	V A	VI A	VII A
II	Li 4.0×10^{-3}	Be 1.5×10^{-3}											B 2.0		N 30		F 6.0×10^{-3}
III	Na 0.055	Mg 0.55											Al 6.5×10^{-4}	Si 0.070	P 3.5	S 1.5	Cl 70
IV	K 0.55	Ca 0.35	Sc 1.0×10^{-3}	Ti 3.0×10^{-3}	V 3.0×10^{-3}	Cr 4.5×10^{-3}	Mn 0.050	Fe 1.0×10^{-3}	Co 7.0×10^{-3}	Ni 0.060	Cu 0.25	Zn 0.90	Ga 4.0×10^{-4}	Ge 0.080	As 6.0×10^{-3}	Se 0.025	Br 1.5
V	Rb 0.070	Sr 0.25	Y 6.0×10^{-3}	Zr 5.0×10^{-4}	Nb 5.0×10^{-3}	Mo 0.060	Tc 1.5	Ru 0.020	Rh 0.040	Pd 0.040	Ag 0.10	Cd 0.15	In 4.0×10^{-4}	Sn 6.0×10^{-3}	Sb 0.030	Te 4.0×10^{-3}	I 0.050
VI	Cs 0.030	Ba 0.015		Hf 8.5×10^{-4}	Ta 2.5×10^{-3}	W 0.010	Re 0.35	Os 3.5×10^{-3}	Ir 0.015	Pt 0.025	Au 0.10	Hg 0.20	Tl 4.0×10^{-4}	Pb 9.0×10^{-3}	Bi 5.0×10^{-3}	Po 4.0×10^{-4}	At 0.15
VII	Fr 8.0×10^{-3}	Ra 1.5×10^{-3}															

Lanthanides	La 4.0×10^{-3}	Ce 4.0×10^{-3}	Pr 4.0×10^{-3}	Nd 4.0×10^{-3}	Pm 4.0×10^{-3}	Sm 4.0×10^{-3}	Eu 4.0×10^{-3}	Gd 4.0×10^{-3}	Tb 4.0×10^{-3}	Dy 4.0×10^{-3}	Ho 4.0×10^{-3}	Er 4.0×10^{-3}	Tm 4.0×10^{-3}	Yb 4.0×10^{-3}	Lu 4.0×10^{-3}
Actinides	Ac 3.5×10^{-4}	Th 8.5×10^{-5}	Pa 2.5×10^{-4}	U 4.0×10^{-3}	Np 0.010	Pu 4.5×10^{-5}	Am 2.5×10^{-4}	Cm 1.5×10^{-5}						

Key: Li 4.0×10^{-3} — Symbol — Transfer Coefficient, B_r

Figure 2.2. Values of the soil-to-plant concentration factor B_r adopted as default estimates in the computer code TERRA.