

US EPA ARCHIVE DOCUMENT

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Seattle, WA	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
	Gypsum Products	0.02000	0.00020	0.00040	0	0.00500	0.01000	0	NA	0.01560
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00500	0	0.09000	0.20000	0	NA	0.29700
	Micronutrients	0.00008	0.00000	0.00000	0	0.00003	0.00008	0	NA	0.00011
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03010	0.00030	0.00090	0	0.01000	0.03000	0	NA	0.04120
	NPK for P2O5	0.01000	0.00010	0.00030	0	0.00600	0.02000	0	NA	0.02640
	P2O5 - 1	0.02000	0.00010	0.00040	0	0.00501	0.02000	0	NA	0.02551
	Potash	0.00020	0.00000	0.00001	0	0.00007	0.00020	0	NA	0.00028
	S as Nutrient	0.00700	0.00008	0.00020	0	0.00300	0.00700	0	NA	0.01028
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00001	0	0.00006	0.00020	0	NA	0.00027
	Albuquerque, NM	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA
Gypsum Products		0.02000	0.00007	0.00020	0	0.00500	0.01000	0	NA	0.01527
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00080	0.00200	0	0.08010	0.20000	0	NA	0.28290
Micronutrients		0.00009	0.00000	0.00000	0	0.00003	0.00006	0	NA	0.00009
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
NPK as N		0.04000	0.00010	0.00040	0	0.01000	0.03000	0	NA	0.04050
NPK for P2O5		0.02000	0.00006	0.00010	0	0.00500	0.01000	0	NA	0.01516
P2O5 - 1		0.02000	0.00005	0.00020	0	0.00500	0.01000	0	NA	0.01525
Potash		0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
S as Nutrient		0.00800	0.00003	0.00007	0	0.00200	0.00700	0	NA	0.00910
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Atlanta, GA		Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA
	Gypsum Products	0.02000	0.00020	0.00030	0	0.00500	0.01000	0	NA	0.01550
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00400	0	0.08000	0.20000	0	NA	0.28600
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00030	0.00070	0	0.01000	0.03000	0	NA	0.04100
	NPK for P2O5	0.01000	0.00010	0.00030	0	0.00501	0.01010	0	NA	0.01551
	P2O5 - 1	0.01010	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00028
	S as Nutrient	0.00700	0.00007	0.00020	0	0.00200	0.00601	0	NA	0.00828
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00027

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Bismarck, ND	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00003	0.00008	0	0.00401	0.01000	0	NA	0.01412
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00040	0.00100	0	0.08000	0.20000	0	NA	0.28140
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00005	0.00020	0	0.01000	0.02010	0	NA	0.03035
	NPK for P2O5	0.02000	0.00003	0.00005	0	0.00401	0.01000	0	NA	0.01409
	P2O5 - 1	0.02000	0.00003	0.00007	0	0.00500	0.01000	0	NA	0.01510
	Potash	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	S as Nutrient	0.00701	0.00001	0.00003	0	0.00200	0.00600	0	NA	0.00804
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Boise, ID	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00100	0.00300	0	0.10000	0.20000	0	NA	0.30400
	Micronutrients	0.00009	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.04000	0.00010	0.00050	0	0.01000	0.03000	0	NA	0.04060
	NPK for P2O5	0.02000	0.00010	0.00020	0	0.00501	0.02000	0	NA	0.02531
	P2O5 - 1	0.02000	0.00008	0.00020	0	0.00600	0.01010	0	NA	0.01638
	Potash	0.00020	0.00000	0.00000	0	0.00008	0.00020	0	NA	0.00028
	S as Nutrient	0.00800	0.00004	0.00010	0	0.00300	0.00700	0	NA	0.01014
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
Boulder, CO	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00101	0.00300	0	0.09000	0.20000	0	NA	0.29401
	Micronutrients	0.00009	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.04000	0.00020	0.00050	0	0.01000	0.03000	0	NA	0.04070
	NPK for P2O5	0.02000	0.00010	0.00020	0	0.00500	0.01010	0	NA	0.01540
	P2O5 - 1	0.02000	0.00010	0.00020	0	0.00600	0.01010	0	NA	0.01640
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00004	0.00010	0	0.00300	0.00700	0	NA	0.01014
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Casper, WY	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00004	0.00008	0	0.00401	0.01000	0	NA	0.01413
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00040	0.00100	0	0.08000	0.20000	0	NA	0.28140
	Micronutrients	0.00009	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00006	0.00020	0	0.00901	0.02000	0	NA	0.02927
	NPK for P2O5	0.02000	0.00003	0.00006	0	0.00500	0.01000	0	NA	0.01509
	P2O5 - 1	0.02000	0.00003	0.00008	0	0.00500	0.01000	0	NA	0.01511
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00002	0.00004	0	0.00200	0.00600	0	NA	0.00806
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Charleston, SC	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00101	0.00300	0	0.08010	0.20000	0	NA	0.28411
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00020	0.00050	0	0.00901	0.03000	0	NA	0.03971
	NPK for P2O5	0.01000	0.00010	0.00020	0	0.00500	0.01000	0	NA	0.01530
	P2O5 - 1	0.01000	0.00010	0.00020	0	0.00500	0.01000	0	NA	0.01530
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00700	0.00005	0.00010	0	0.00200	0.00601	0	NA	0.00816
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00005	0.00020	0	NA	0.00025
Chicago, IL	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
	Gypsum Products	0.02000	0.00020	0.00050	0	0.00500	0.02000	0	NA	0.02570
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00700	0	0.10000	0.20000	0	NA	0.30900
	Micronutrients	0.00008	0.00000	0.00000	0	0.00003	0.00008	0	NA	0.00011
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00030	0.00100	0	0.01000	0.03000	0	NA	0.04130
	NPK for P2O5	0.01010	0.00020	0.00040	0	0.00600	0.01010	0	NA	0.01670
	P2O5 - 1	0.02000	0.00020	0.00040	0	0.00500	0.02000	0	NA	0.02560
	Potash	0.00020	0.00000	0.00000	0	0.00008	0.00020	0	NA	0.00029
	S as Nutrient	0.00701	0.00008	0.00020	0	0.00300	0.00800	0	NA	0.01128
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00028

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Cleveland, OH	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
	Gypsum Products	0.02000	0.00020	0.00050	0	0.00500	0.02000	0	NA	0.02570
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00600	0	0.09000	0.20000	0	NA	0.29800
	Micronutrients	0.00008	0.00000	0.00000	0	0.00003	0.00008	0	NA	0.00011
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03010	0.00040	0.00100	0	0.01000	0.03000	0	NA	0.04140
	NPK for P2O5	0.01010	0.00020	0.00040	0	0.00600	0.02000	0	NA	0.02660
	P2O5 - 1	0.02000	0.00020	0.00050	0	0.00600	0.02000	0	NA	0.02670
	Potash	0.00020	0.00000	0.00001	0	0.00008	0.00020	0	NA	0.00029
	S as Nutrient	0.00800	0.00010	0.00020	0	0.00300	0.00800	0	NA	0.01130
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00001	0	0.00007	0.00020	0	NA	0.00028
	Fresno, CA	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA
Gypsum Products		0.02000	0.00008	0.00020	0	0.00500	0.01000	0	NA	0.01528
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00090	0.00200	0	0.09000	0.20000	0	NA	0.29290
Micronutrients		0.00009	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
NPK as N		0.03010	0.00010	0.00040	0	0.01000	0.03000	0	NA	0.04050
NPK for P2O5		0.02000	0.00007	0.00020	0	0.00500	0.01010	0	NA	0.01537
P2O5 - 1		0.02000	0.00007	0.00020	0	0.00500	0.01000	0	NA	0.01527
Potash		0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
S as Nutrient		0.00800	0.00004	0.00009	0	0.00201	0.00700	0	NA	0.00914
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
Grand Island, NE		Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA
	Gypsum Products	0.02000	0.00005	0.00010	0	0.00401	0.01000	0	NA	0.01416
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00050	0.00100	0	0.08000	0.20000	0	NA	0.28150
	Micronutrients	0.00009	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00007	0.00020	0	0.00901	0.02000	0	NA	0.02928
	NPK for P2O5	0.02000	0.00003	0.00007	0	0.00500	0.01000	0	NA	0.01510
	P2O5 - 1	0.02000	0.00003	0.00009	0	0.00500	0.01000	0	NA	0.01512
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00002	0.00005	0	0.00200	0.00600	0	NA	0.00807
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Harrisburg, PA	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00008	0.00020	0	0.00500	0.01000	0	NA	0.01528
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00100	0.00200	0	0.08000	0.20000	0	NA	0.28300
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00010	0.00040	0	0.01000	0.02010	0	NA	0.03060
	NPK for P2O5	0.01010	0.00007	0.00020	0	0.00500	0.01000	0	NA	0.01527
	P2O5 - 1	0.01010	0.00006	0.00020	0	0.00500	0.01000	0	NA	0.01526
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00004	0.00009	0	0.00200	0.00600	0	NA	0.00813
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	Hartford, CT	Boron	0.00008	0.00000	0.00000	0	0.00001	0.00004	0	NA
Gypsum Products		0.02000	0.00007	0.00010	0	0.00400	0.01000	0	NA	0.01417
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00100	0.00200	0	0.08010	0.20000	0	NA	0.28310
Micronutrients		0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
NPK as N		0.03000	0.00010	0.00030	0	0.00901	0.02000	0	NA	0.02941
NPK for P2O5		0.01000	0.00007	0.00010	0	0.00400	0.01000	0	NA	0.01417
P2O5 - 1		0.01010	0.00006	0.00010	0	0.00500	0.01000	0	NA	0.01516
Potash		0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
S as Nutrient		0.00700	0.00003	0.00007	0	0.00200	0.00600	0	NA	0.00810
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Houston, TX		Boron	0.00008	0.00000	0.00000	0	0.00001	0.00004	0	NA
	Gypsum Products	0.02000	0.00006	0.00010	0	0.00400	0.01000	0	NA	0.01416
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00060	0.00200	0	0.08000	0.20000	0	NA	0.28260
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03000	0.00008	0.00030	0	0.00901	0.02000	0	NA	0.02939
	NPK for P2O5	0.01010	0.00006	0.00010	0	0.00401	0.01000	0	NA	0.01417
	P2O5 - 1	0.02000	0.00005	0.00010	0	0.00500	0.01000	0	NA	0.01515
	Potash	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	S as Nutrient	0.00700	0.00002	0.00007	0	0.00200	0.00500	0	NA	0.00709
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00005	0.00010	0	NA	0.00015

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Huntington, WV	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00100	0.00300	0	0.08010	0.20000	0	NA	0.28410
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00020	0.00060	0	0.01000	0.03000	0	NA	0.04080
	NPK for P2O5	0.01000	0.00010	0.00020	0	0.00500	0.01000	0	NA	0.01530
	P2O5 - 1	0.02000	0.00009	0.00020	0	0.00500	0.01000	0	NA	0.01529
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00005	0.00010	0	0.00200	0.00700	0	NA	0.00915
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
Las Vegas, NV	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00004	0.00009	0	0.00401	0.01000	0	NA	0.01414
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00040	0.00100	0	0.08000	0.20000	0	NA	0.28140
	Micronutrients	0.00009	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00005	0.00020	0	0.00901	0.02000	0	NA	0.02926
	NPK for P2O5	0.02000	0.00003	0.00007	0	0.00500	0.01000	0	NA	0.01510
	P2O5 - 1	0.02000	0.00003	0.00007	0	0.00500	0.01000	0	NA	0.01510
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00800	0.00002	0.00004	0	0.00200	0.00600	0	NA	0.00806
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Los Angeles, CA	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00100	0.00300	0	0.09000	0.20000	0	NA	0.29400
	Micronutrients	0.00009	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03010	0.00020	0.00060	0	0.01000	0.03000	0	NA	0.04080
	NPK for P2O5	0.02000	0.00009	0.00020	0	0.00500	0.01010	0	NA	0.01539
	P2O5 - 1	0.02000	0.00009	0.00020	0	0.00501	0.01000	0	NA	0.01530
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00700	0.00005	0.00010	0	0.00201	0.00601	0	NA	0.00817
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Memphis, TN	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00020	0.00040	0	0.00500	0.01000	0	NA	0.01560
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00500	0	0.09010	0.20000	0	NA	0.29710
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00020	0.00080	0	0.00901	0.03000	0	NA	0.04001
	NPK for P2O5	0.01000	0.00020	0.00020	0	0.00501	0.02000	0	NA	0.02541
	P2O5 - 1	0.01000	0.00010	0.00040	0	0.00500	0.01000	0	NA	0.01550
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00028
	S as Nutrient	0.00700	0.00007	0.00020	0	0.00300	0.00700	0	NA	0.01027
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00027
	Miami, FL	Boron	0.00006	0.00000	0.00000	0	0.00002	0.00003	0	NA
Gypsum Products		0.01010	0.00004	0.00010	0	0.00400	0.01000	0	NA	0.01414
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00040	0.00100	0	0.07000	0.20000	0	NA	0.27140
Micronutrients		0.00007	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
NPK as N		0.03000	0.00007	0.00020	0	0.00802	0.02000	0	NA	0.02829
NPK for P2O5		0.01000	0.00003	0.00007	0	0.00400	0.00802	0	NA	0.01212
P2O5 - 1		0.01010	0.00003	0.00009	0	0.00400	0.01000	0	NA	0.01412
Potash		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
S as Nutrient		0.00501	0.00002	0.00004	0	0.00200	0.00401	0	NA	0.00607
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00005	0.00010	0	NA	0.00015
Minneapolis, MN		Boron	0.00008	0.00000	0.00000	0	0.00002	0.00005	0	NA
	Gypsum Products	0.02000	0.00010	0.00040	0	0.00500	0.01000	0	NA	0.01550
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00500	0	0.10000	0.20000	0	NA	0.30700
	Micronutrients	0.00008	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03010	0.00030	0.00080	0	0.01000	0.03000	0	NA	0.04110
	NPK for P2O5	0.02000	0.00010	0.00030	0	0.00600	0.01010	0	NA	0.01650
	P2O5 - 1	0.02000	0.00010	0.00040	0	0.00501	0.02000	0	NA	0.02551
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00028
	S as Nutrient	0.00800	0.00006	0.00020	0	0.00300	0.00700	0	NA	0.01026
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00027



99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Philadelphia, PA	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00009	0.00020	0	0.00400	0.01000	0	NA	0.01429
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00080	0.00200	0	0.08000	0.20000	0	NA	0.28280
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03000	0.00010	0.00040	0	0.00901	0.02010	0	NA	0.02961
	NPK for P2O5	0.01000	0.00006	0.00010	0	0.00500	0.01000	0	NA	0.01516
	P2O5 - 1	0.02000	0.00006	0.00020	0	0.00500	0.01000	0	NA	0.01526
	Potash	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	S as Nutrient	0.00700	0.00003	0.00007	0	0.00200	0.00600	0	NA	0.00810
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00005	0.00010	0	NA	0.00015
	Phoenix, AZ	Boron	0.00009	0.00000	0.00000	0	0.00002	0.00004	0	NA
Gypsum Products		0.02000	0.00004	0.00010	0	0.00500	0.01000	0	NA	0.01514
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00050	0.00101	0	0.09000	0.20000	0	NA	0.29151
Micronutrients		0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
NPK as N		0.03010	0.00006	0.00020	0	0.01000	0.02000	0	NA	0.03026
NPK for P2O5		0.02000	0.00004	0.00008	0	0.00500	0.01000	0	NA	0.01512
P2O5 - 1		0.02000	0.00003	0.00010	0	0.00500	0.01000	0	NA	0.01513
Potash		0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
S as Nutrient		0.00800	0.00002	0.00004	0	0.00200	0.00600	0	NA	0.00806
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Portland, ME		Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00400	0	0.08000	0.20000	0	NA	0.28600
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03000	0.00020	0.00070	0	0.01000	0.03000	0	NA	0.04090
	NPK for P2O5	0.01000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	P2O5 - 1	0.01000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Potash	0.00010	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	S as Nutrient	0.00700	0.00006	0.00010	0	0.00200	0.00601	0	NA	0.00817
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00027

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
Raleigh-Durham, NC	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00005	0	NA	0.00007
	Gypsum Products	0.02000	0.00020	0.00040	0	0.00500	0.01000	0	NA	0.01560
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00200	0.00600	0	0.09000	0.20000	0	NA	0.29800
	Micronutrients	0.00008	0.00000	0.00000	0	0.00003	0.00007	0	NA	0.00010
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.03000	0.00030	0.00090	0	0.01000	0.03000	0	NA	0.04120
	NPK for P2O5	0.01000	0.00020	0.00040	0	0.00500	0.01010	0	NA	0.01570
	P2O5 - 1	0.01000	0.00010	0.00040	0	0.00500	0.01010	0	NA	0.01560
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00028
	S as Nutrient	0.00700	0.00008	0.00020	0	0.00200	0.00700	0	NA	0.00928
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00001	0	0.00007	0.00020	0	NA	0.00028
	Salem, OR	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA
Gypsum Products		0.02000	0.00008	0.00020	0	0.00400	0.01000	0	NA	0.01428
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00100	0.00200	0	0.08000	0.20000	0	NA	0.28300
Micronutrients		0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
NPK as N		0.03010	0.00010	0.00040	0	0.00901	0.02010	0	NA	0.02961
NPK for P2O5		0.01000	0.00007	0.00020	0	0.00500	0.01000	0	NA	0.01527
P2O5 - 1		0.01010	0.00006	0.00020	0	0.00500	0.01000	0	NA	0.01526
Potash		0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
S as Nutrient		0.00700	0.00003	0.00008	0	0.00200	0.00600	0	NA	0.00811
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016
Salt Lake City, UT		Boron	0.00008	0.00000	0.00000	0	0.00002	0.00005	0	NA
	Gypsum Products	0.02000	0.00010	0.00030	0	0.00500	0.01000	0	NA	0.01540
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00100	0.00300	0	0.10000	0.20000	0	NA	0.30400
	Micronutrients	0.00009	0.00000	0.00000	0	0.00002	0.00007	0	NA	0.00009
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00001
	NPK as N	0.04000	0.00020	0.00060	0	0.01000	0.03000	0	NA	0.04080
	NPK for P2O5	0.02000	0.00010	0.00020	0	0.00501	0.02000	0	NA	0.02531
	P2O5 - 1	0.02000	0.00010	0.00030	0	0.00600	0.02000	0	NA	0.02640
	Potash	0.00020	0.00000	0.00000	0	0.00008	0.00020	0	NA	0.00028
	S as Nutrient	0.00800	0.00006	0.00010	0	0.00300	0.00700	0	NA	0.01016
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027

99th Percentile Risks from Application of Fertilizer Products  
Vanadium (Child)

Climate Region	Product	Soil Ingestion	Fruit Ingestion	Vegetable Ingestion	Below-ground Vegetable Ingestion	Beef Ingestion	Milk Ingestion	Fish Ingestion	Direct Inhalation	All Indirect Pathways Combined <sup>1</sup>
San Francisco, CA	Boron	0.00007	0.00000	0.00000	0	0.00002	0.00004	0	NA	0.00006
	Gypsum Products	0.02000	0.00007	0.00010	0	0.00500	0.01000	0	NA	0.01517
	Iron	NA	NA	NA	NA	NA	NA	0	NA	NA
	Liming Materials	0.20000	0.00070	0.00200	0	0.08010	0.20000	0	NA	0.28280
	Micronutrients	0.00008	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
	Mn	0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
	NPK as N	0.03010	0.00010	0.00030	0	0.00901	0.02010	0	NA	0.02951
	NPK for P2O5	0.02000	0.00006	0.00010	0	0.00501	0.01000	0	NA	0.01517
	P2O5 - 1	0.02000	0.00005	0.00010	0	0.00500	0.01000	0	NA	0.01515
	Potash	0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
	S as Nutrient	0.00700	0.00003	0.00007	0	0.00200	0.00601	0	NA	0.00811
	S as Ph	NA	NA	NA	NA	NA	NA	0	NA	NA
	Zinc	0.00020	0.00000	0.00000	0	0.00006	0.00020	0	NA	0.00026
	Winnemucca, NV	Boron	0.00008	0.00000	0.00000	0	0.00002	0.00004	0	NA
Gypsum Products		0.02000	0.00002	0.00004	0	0.00400	0.01000	0	NA	0.01406
Iron		NA	NA	NA	NA	NA	NA	0	NA	NA
Liming Materials		0.20000	0.00020	0.00040	0	0.08000	0.20000	0	NA	0.28060
Micronutrients		0.00009	0.00000	0.00000	0	0.00002	0.00006	0	NA	0.00008
Mn		0.00001	0.00000	0.00000	0	0.00000	0.00000	0	NA	0.00000
NPK as N		0.03010	0.00003	0.00008	0	0.00901	0.02000	0	NA	0.02912
NPK for P2O5		0.01010	0.00002	0.00003	0	0.00500	0.01000	0	NA	0.01505
P2O5 - 1		0.02000	0.00001	0.00004	0	0.00500	0.01000	0	NA	0.01505
Potash		0.00020	0.00000	0.00000	0	0.00007	0.00020	0	NA	0.00027
S as Nutrient		0.00800	0.00001	0.00002	0	0.00200	0.00600	0	NA	0.00803
S as Ph		NA	NA	NA	NA	NA	NA	0	NA	NA
Zinc		0.00020	0.00000	0.00000	0	0.00006	0.00010	0	NA	0.00016

<sup>1</sup> All Indirect Pathways Combined includes Fruit, Vegetable, Below-ground Vegetable, Beef, and Milk Ingestion. Numbers less than 0.00001 appear as a default of 0.00000.