

US EPA ARCHIVE DOCUMENT

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Seattle, WA	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00003	0.00003	0.00003	0.00060	0.00070	0.00000	0.00000	0.00139
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00107
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00003	0.00002	0.00060	0.00070	0.00000	0.00000	0.00137
	Albuquerque, NM	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
NPK as N		0.00050	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
NPK for P2O5		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00003	0.00060	0.00080	0.00000	0.00000	0.00147
Atlanta, GA		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.00900	0.01000	0.00000	0.00000	0.02030
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00008	0.00000	0.00000	0.00017
	NPK as N	0.00040	0.00007	0.00009	0.00006	0.00200	0.00200	0.00000	0.00000	0.00422
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00050	0.00061	0.00000	0.00000	0.00117

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Bismarck, ND	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00115
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00050	0.00070	0.00000	0.00000	0.00126
	Boise, ID	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00004	0.00003	0.00070	0.00070	0.00000	0.00000	0.00150
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00020
NPK as N		0.00050	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
NPK for P2O5		0.00010	0.00002	0.00002	0.00002	0.00051	0.00060	0.00000	0.00000	0.00117
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00051	0.00060	0.00000	0.00000	0.00117
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
S as Nutrient		0.00020	0.00004	0.00005	0.00003	0.00071	0.00071	0.00000	0.00000	0.00154
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00003	0.00060	0.00080	0.00000	0.00000	0.00147
Boulder, CO		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00041	0.01000	0.01000	0.00000	0.00000	0.02131
	Micronutrients	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00020
	NPK as N	0.00050	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00051	0.00060	0.00000	0.00000	0.00117
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00051	0.00060	0.00000	0.00000	0.00117
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00003	0.00060	0.00080	0.00000	0.00000	0.00147

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Casper, WY	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00041	0.00007	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00051	0.00071	0.00000	0.00000	0.00128
	Charleston, SC	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.00900	0.01000	0.00000	0.00000	0.02030
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00008	0.00008	0.00000	0.00000	0.00017
NPK as N		0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
NPK for P2O5		0.00010	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00002	0.00050	0.00070	0.00000	0.00000	0.00126
Chicago, IL		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00010	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00003	0.00002	0.00050	0.00060	0.00000	0.00000	0.00117
	P2O5 - 1	0.00010	0.00002	0.00003	0.00002	0.00050	0.00060	0.00000	0.00000	0.00117
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00006	0.00002	0.00080	0.00070	0.00000	0.00000	0.00162
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00070	0.00000	0.00000	0.00136

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Cleveland, OH	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00003	0.00003	0.00003	0.00061	0.00070	0.00000	0.00000	0.00140
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	P2O5 - 1	0.00010	0.00002	0.00003	0.00002	0.00050	0.00060	0.00000	0.00000	0.00117
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00006	0.00002	0.00070	0.00070	0.00000	0.00000	0.00152
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00003	0.00002	0.00060	0.00080	0.00000	0.00000	0.00147
	Fresno, CA	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
NPK as N		0.00050	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
NPK for P2O5		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00003	0.00060	0.00080	0.00000	0.00000	0.00147
Grand Island, NE		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00050	0.00008	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00003	0.00050	0.00071	0.00000	0.00000	0.00128

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Nickel (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 ¹
Harrisburg, PA	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00003	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00129
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00007	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00106
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00051	0.00070	0.00000	0.00000	0.00127
	Hartford, CT	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00040	0.00040	0.00900	0.01000	0.00000	0.00000	0.02020
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
NPK as N		0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
NPK for P2O5		0.00010	0.00001	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00106
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00002	0.00050	0.00070	0.00000	0.00000	0.00126
Houston, TX		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00030	0.00040	0.00040	0.00900	0.01000	0.00000	0.00000	0.02010
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00008	0.00000	0.00000	0.00017
	NPK as N	0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00060	0.00000	0.00000	0.00140
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00050	0.00061	0.00000	0.00000	0.00117

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Huntington, WV	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00003	0.00003	0.00003	0.00060	0.00070	0.00000	0.00000	0.00139
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00106
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00070	0.00000	0.00000	0.00136
	Las Vegas, NV	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
NPK as N		0.00041	0.00007	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
NPK for P2O5		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00002	0.00051	0.00080	0.00000	0.00000	0.00137
Los Angeles, CA		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00071	0.00000	0.00000	0.00137

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Memphis, TN	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00030	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02120
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
	NPK as N	0.00040	0.00007	0.00009	0.00006	0.00200	0.00200	0.00000	0.00000	0.00422
	NPK for P2O5	0.00009	0.00001	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00115
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00003	0.00002	0.00050	0.00070	0.00000	0.00000	0.00127
	Miami, FL	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00010	0.00002	0.00003	0.00002	0.00050	0.00060	0.00000	0.00000	0.00117
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00030	0.00040	0.00040	0.00800	0.01000	0.00000	0.00000	0.01910
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00007	0.00008	0.00000	0.00000	0.00016
NPK as N		0.00040	0.00006	0.00008	0.00006	0.00100	0.00200	0.00000	0.00000	0.00320
NPK for P2O5		0.00009	0.00001	0.00002	0.00002	0.00040	0.00050	0.00000	0.00000	0.00095
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00040	0.00050	0.00000	0.00000	0.00096
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00003	0.00004	0.00002	0.00060	0.00060	0.00000	0.00000	0.00129
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00001	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00115
Minneapolis, MN		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00051	0.00060	0.00000	0.00000	0.00117
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00004	0.00005	0.00002	0.00071	0.00070	0.00000	0.00000	0.00152
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00080	0.00000	0.00000	0.00146

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Philadelphia, PA	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00061	0.00000	0.00000	0.00129
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00031	0.00050	0.00040	0.00900	0.01000	0.00000	0.00000	0.02021
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
	NPK as N	0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
	NPK for P2O5	0.00010	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00070	0.00000	0.00000	0.00136
	Phoenix, AZ	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
NPK as N		0.00050	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
NPK for P2O5		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00004	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00151
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00003	0.00060	0.00070	0.00000	0.00000	0.00137
Portland, ME		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00030	0.00041	0.00040	0.00900	0.01000	0.00000	0.00000	0.02011
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00008	0.00008	0.00000	0.00000	0.00017
	NPK as N	0.00040	0.00007	0.00009	0.00006	0.00110	0.00200	0.00000	0.00000	0.00332
	NPK for P2O5	0.00009	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00050	0.00061	0.00000	0.00000	0.00117

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
Raleigh-Durham, NC	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00007	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00107
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00060	0.00070	0.00000	0.00000	0.00136
	Salem, OR	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00010	0.00002	0.00003	0.00003	0.00060	0.00060	0.00000	0.00000	0.00128
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00008	0.00009	0.00000	0.00000	0.00018
NPK as N		0.00040	0.00007	0.00009	0.00007	0.00200	0.00200	0.00000	0.00000	0.00423
NPK for P2O5		0.00010	0.00001	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00105
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00050	0.00000	0.00000	0.00106
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
S as Nutrient		0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00002	0.00051	0.00070	0.00000	0.00000	0.00127
Salt Lake City, UT		Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00001	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00050	0.00008	0.00010	0.00008	0.00200	0.00200	0.00000	0.00000	0.00426
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00060	0.00060	0.00000	0.00000	0.00126
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
	S as Nutrient	0.00020	0.00004	0.00006	0.00002	0.00070	0.00080	0.00000	0.00000	0.00162
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00003	0.00060	0.00070	0.00000	0.00000	0.00137

90th Percentile Risks from Application of Fertilizer Products
Nickel (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 ¹
San Francisco, CA	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	Mn	0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
	NPK as N	0.00040	0.00007	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00424
	NPK for P2O5	0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
	P2O5 - 1	0.00010	0.00002	0.00002	0.00002	0.00050	0.00051	0.00000	0.00000	0.00107
	Potash	0.00001	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00010	0.00002	0.00002	0.00002	0.00051	0.00070	0.00000	0.00000	0.00127
	Winnemucca, NV	Boron	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00020	0.00003	0.00003	0.00003	0.00070	0.00070	0.00000	0.00000	0.00149
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00200	0.00040	0.00050	0.00040	0.01000	0.01000	0.00000	0.00000	0.02130
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
Mn		0.00002	0.00000	0.00000	0.00000	0.00009	0.00009	0.00000	0.00000	0.00019
NPK as N		0.00040	0.00008	0.00010	0.00007	0.00200	0.00200	0.00000	0.00000	0.00425
NPK for P2O5		0.00010	0.00001	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00115
P2O5 - 1		0.00010	0.00002	0.00002	0.00002	0.00050	0.00060	0.00000	0.00000	0.00116
Potash		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
S as Nutrient		0.00020	0.00003	0.00005	0.00002	0.00070	0.00070	0.00000	0.00000	0.00150
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00010	0.00002	0.00002	0.00003	0.00060	0.00070	0.00000	0.00000	0.00137

¹ 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.