

US EPA ARCHIVE DOCUMENT

50th 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 <sup>1</sup>
Seattle, WA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00007	0.00000	0.00000	0.00014
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Albuquerque, NM	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
P2O5 - 1		0.00002	0.00000	0.00001	0.00000	0.00005	0.00008	0.00000	0.00000	0.00014
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
Atlanta, GA		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00001	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006

50th 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 <sup>1</sup>
Bismarck, ND	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006
	Boise, ID	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00004	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
P2O5 - 1		0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
Boulder, CO		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00004	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

50th 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 <sup>1</sup>
Casper, WY	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Charleston, SC	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00021
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00001	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00011
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
Chicago, IL		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

50th 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 <sup>1</sup>
Cleveland, OH	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Fresno, CA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00006	0.00008	0.00000	0.00000	0.00014
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
Grand Island, NE		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

50th 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 <sup>1</sup>
Harrisburg, PA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Hartford, CT	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00021
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
NPK as N		0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00004	0.00006	0.00000	0.00000	0.00011
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
Houston, TX		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00021
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00004	0.00006	0.00000	0.00000	0.00011
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005

50th 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 <sup>1</sup>
Huntington, WV	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Las Vegas, NV	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00055	0.00000	0.00000	0.00102
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
Los Angeles, CA		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00005	0.00008	0.00000	0.00000	0.00014
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

50th 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 <sup>1</sup>
Memphis, TN	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00001	0.00040	0.00050	0.00000	0.00000	0.00096
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006
	Miami, FL	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00000	0.00001	0.00000	0.00008	0.00010	0.00000	0.00000	0.00019
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00002	0.00001	0.00030	0.00045	0.00000	0.00000	0.00080
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
NPK as N		0.00003	0.00001	0.00001	0.00000	0.00010	0.00015	0.00000	0.00000	0.00027
NPK for P2O5		0.00001	0.00000	0.00000	0.00000	0.00004	0.00005	0.00000	0.00000	0.00010
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00004	0.00006	0.00000	0.00000	0.00011
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
Minneapolis, MN		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007



50th 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 <sup>1</sup>
Philadelphia, PA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00021
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
	Phoenix, AZ	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
Portland, ME		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00009	0.00010	0.00000	0.00000	0.00021
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00001	0.00040	0.00050	0.00000	0.00000	0.00096
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00001	0.00000	0.00000	0.00000	0.00004	0.00006	0.00000	0.00000	0.00011
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006

50th 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 <sup>1</sup>
Raleigh-Durham, NC	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00007	0.00000	0.00000	0.00014
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Salem, OR	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
NPK as N		0.00004	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00004	0.00006	0.00000	0.00000	0.00011
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
Salt Lake City, UT		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00004	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00060	0.00000	0.00000	0.00107
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	P2O5 - 1	0.00002	0.00000	0.00001	0.00000	0.00006	0.00008	0.00000	0.00000	0.00015
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

50th 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 <sup>1</sup>
San Francisco, CA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
	Micronutrients	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Mn	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	NPK as N	0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
	NPK for P2O5	0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
	P2O5 - 1	0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
	Potash	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	S as Nutrient	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	Winnemucca, NV	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00003	0.00001	0.00001	0.00000	0.00010	0.00010	0.00000	0.00000	0.00022
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.00010	0.00002	0.00003	0.00002	0.00040	0.00050	0.00000	0.00000	0.00097
Micronutrients		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mn		0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
NPK as N		0.00004	0.00001	0.00001	0.00001	0.00010	0.00020	0.00000	0.00000	0.00032
NPK for P2O5		0.00002	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
P2O5 - 1		0.00002	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00013
Potash		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
S as Nutrient		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00001	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007

<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.