

US EPA ARCHIVE DOCUMENT

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.04000	0.00080	0.00200	0.00020	0.03010	0.05000	0.00001	0.00000	0.08310
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00030	0.00020	0.00000	0.00000	0.00052
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00500	0.00010	0.00030	0.00003	0.00500	0.00600	0.00000	0.00000	0.01143
	NPK for P2O5	0.00200	0.00006	0.00010	0.00001	0.00200	0.00200	0.00000	0.00000	0.00417
	P2O5 - 1	0.40000	0.01000	0.02000	0.00200	0.40100	0.60000	0.00010	0.00001	1.03300
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	S as Nutrient	0.00070	0.00002	0.00004	0.00000	0.00070	0.00080	0.00000	0.00000	0.00156
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00060	0.00002	0.00003	0.00000	0.00060	0.00060	0.00000	0.00000	0.00126
	Albuquerque, NM	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00100	0.00003	0.00004	0.00001	0.00100	0.00100	0.00000	0.00000	0.00208
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.30000	0.00500	0.01000	0.00200	0.30000	0.30000	0.00001	0.00000	0.61700
Micronutrients		0.00200	0.00004	0.00007	0.00001	0.00200	0.00200	0.00000	0.00000	0.00412
Mn		0.00007	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00012
NPK as N		0.03010	0.00090	0.00200	0.00030	0.04000	0.04000	0.00000	0.00000	0.08320
NPK for P2O5		0.01000	0.00030	0.00040	0.00008	0.01000	0.01000	0.00000	0.00000	0.02078
P2O5 - 1		3.01000	0.07010	0.10000	0.01000	3.00000	3.00000	0.00007	0.00003	6.18010
Potash		0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
S as Nutrient		0.00500	0.00010	0.00020	0.00003	0.00501	0.00500	0.00000	0.00000	0.01034
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00400	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
Atlanta, GA		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00010	0.00000	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	0.03000	0.00060	0.00200	0.00020	0.02010	0.03010	0.00001	0.00000	0.05300
	Micronutrients	0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00301	0.00010	0.00020	0.00002	0.00301	0.00400	0.00000	0.00000	0.00733
	NPK for P2O5	0.00100	0.00005	0.00006	0.00001	0.00100	0.00100	0.00000	0.00000	0.00212
	P2O5 - 1	0.30000	0.00802	0.01010	0.00100	0.20100	0.30100	0.00007	0.00000	0.52112
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00050	0.00001	0.00003	0.00000	0.00050	0.00060	0.00000	0.00000	0.00114
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00040	0.00002	0.00002	0.00000	0.00040	0.00040	0.00000	0.00000	0.00084

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00001
	Gypsum Products	0.00040	0.00001	0.00001	0.00000	0.00030	0.00040	0.00000	0.00000	0.00072
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.09000	0.00100	0.00300	0.00060	0.06010	0.08010	0.00000	0.00000	0.14480
	Micronutrients	0.00070	0.00001	0.00002	0.00000	0.00060	0.00040	0.00000	0.00000	0.00103
	Mn	0.00003	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	NPK as N	0.01000	0.00020	0.00050	0.00008	0.01000	0.01000	0.00000	0.00000	0.02078
	NPK for P2O5	0.00400	0.00009	0.00010	0.00002	0.00400	0.00400	0.00000	0.00000	0.00821
	P2O5 - 1	0.90000	0.02000	0.03000	0.00400	0.80000	0.90100	0.00002	0.00003	1.75500
	Potash	0.00005	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	S as Nutrient	0.00200	0.00003	0.00005	0.00001	0.00100	0.00200	0.00000	0.00000	0.00309
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00100	0.00005	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00211
	Boise, ID	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00100	0.00003	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00209
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.30000	0.00600	0.01000	0.00200	0.30000	0.30100	0.00001	0.00000	0.61900
Micronutrients		0.00200	0.00005	0.00008	0.00001	0.00200	0.00200	0.00000	0.00000	0.00414
Mn		0.00007	0.00000	0.00000	0.00000	0.00006	0.00006	0.00000	0.00000	0.00013
NPK as N		0.03010	0.00100	0.00200	0.00030	0.04000	0.04000	0.00000	0.00000	0.08330
NPK for P2O5		0.01000	0.00030	0.00050	0.00009	0.01000	0.01010	0.00000	0.00000	0.02099
P2O5 - 1		3.01000	0.08020	0.10000	0.01000	3.01000	3.00000	0.00008	0.00005	6.20020
Potash		0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
S as Nutrient		0.00500	0.00020	0.00020	0.00004	0.00600	0.00501	0.00000	0.00000	0.01145
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00400	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
Boulder, CO		Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00090	0.00002	0.00003	0.00001	0.00070	0.00090	0.00000	0.00000	0.00166
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.20000	0.00400	0.00901	0.00100	0.20000	0.20000	0.00002	0.00002	0.41401
	Micronutrients	0.00200	0.00003	0.00006	0.00001	0.00100	0.00100	0.00000	0.00000	0.00210
	Mn	0.00005	0.00000	0.00000	0.00000	0.00004	0.00004	0.00000	0.00000	0.00008
	NPK as N	0.03000	0.00080	0.00200	0.00020	0.02010	0.03000	0.00000	0.00000	0.05310
	NPK for P2O5	0.00900	0.00030	0.00040	0.00006	0.01000	0.01000	0.00000	0.00000	0.02076
	P2O5 - 1	2.00000	0.06010	0.09010	0.01000	2.00000	2.00000	0.00020	0.00026	4.16020
	Potash	0.00009	0.00000	0.00000	0.00000	0.00007	0.00010	0.00000	0.00000	0.00018
	S as Nutrient	0.00400	0.00010	0.00020	0.00003	0.00300	0.00400	0.00000	0.00000	0.00733
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00300	0.00010	0.00010	0.00003	0.00301	0.00300	0.00000	0.00000	0.00624

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Chromium (Child)

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Casper, WY	Boron	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
	Gypsum Products	0.00050	0.00001	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00103
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.10000	0.00200	0.00401	0.00080	0.09010	0.10000	0.00000	0.00000	0.19691
	Micronutrients	0.00100	0.00002	0.00002	0.00001	0.00080	0.00060	0.00000	0.00000	0.00145
	Mn	0.00004	0.00000	0.00000	0.00000	0.00002	0.00003	0.00000	0.00000	0.00005
	NPK as N	0.02000	0.00040	0.00070	0.00010	0.01000	0.02000	0.00000	0.00000	0.03120
	NPK for P2O5	0.00600	0.00010	0.00020	0.00003	0.00501	0.00600	0.00000	0.00000	0.01134
	P2O5 - 1	1.00000	0.03000	0.03010	0.00501	1.00000	1.00000	0.00003	0.00006	2.06511
	Potash	0.00007	0.00000	0.00000	0.00000	0.00004	0.00005	0.00000	0.00000	0.00009
	S as Nutrient	0.00200	0.00005	0.00007	0.00001	0.00200	0.00201	0.00000	0.00000	0.00414
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00200	0.00006	0.00006	0.00001	0.00200	0.00200	0.00000	0.00000	0.00413
	Charleston, SC	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00010	0.00000	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		0.03000	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
Micronutrients		0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00041
Mn		0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
NPK as N		0.00301	0.00009	0.00020	0.00003	0.00400	0.00400	0.00000	0.00000	0.00832
NPK for P2O5		0.00100	0.00004	0.00005	0.00001	0.00100	0.00101	0.00000	0.00000	0.00211
P2O5 - 1		0.30000	0.00701	0.01000	0.00100	0.30000	0.40000	0.00006	0.00000	0.71801
Potash		0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
S as Nutrient		0.00050	0.00001	0.00002	0.00000	0.00040	0.00050	0.00000	0.00000	0.00094
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00050	0.00002	0.00002	0.00000	0.00040	0.00040	0.00000	0.00000	0.00084
Chicago, IL		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.04000	0.00100	0.00201	0.00030	0.04000	0.06000	0.00001	0.00000	0.10331
	Micronutrients	0.00030	0.00001	0.00002	0.00000	0.00030	0.00030	0.00000	0.00000	0.00063
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00501	0.00020	0.00040	0.00004	0.00600	0.00700	0.00000	0.00000	0.01364
	NPK for P2O5	0.00200	0.00007	0.00010	0.00001	0.00200	0.00201	0.00000	0.00000	0.00419
	P2O5 - 1	0.50000	0.01000	0.02010	0.00200	0.40100	0.60100	0.00008	0.00001	1.03410
	Potash	0.00002	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00080	0.00002	0.00005	0.00001	0.00070	0.00080	0.00000	0.00000	0.00158
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00070	0.00003	0.00004	0.00001	0.00070	0.00070	0.00000	0.00000	0.00148

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.04000	0.00090	0.00200	0.00030	0.03010	0.05010	0.00001	0.00000	0.08340
	Micronutrients	0.00030	0.00001	0.00002	0.00000	0.00030	0.00030	0.00000	0.00000	0.00063
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00500	0.00020	0.00040	0.00004	0.00500	0.00600	0.00000	0.00000	0.01164
	NPK for P2O5	0.00200	0.00008	0.00010	0.00001	0.00200	0.00200	0.00000	0.00000	0.00419
	P2O5 - 1	0.40000	0.01000	0.02010	0.00200	0.40100	0.50200	0.00007	0.00001	0.93510
	Potash	0.00002	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	S as Nutrient	0.00070	0.00002	0.00004	0.00001	0.00070	0.00080	0.00000	0.00000	0.00157
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00060	0.00002	0.00004	0.00000	0.00060	0.00070	0.00000	0.00000	0.00136
	Fresno, CA	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00100	0.00003	0.00004	0.00001	0.00100	0.00100	0.00000	0.00000	0.00208
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.30000	0.00600	0.01000	0.00200	0.30000	0.30000	0.00001	0.00000	0.61800
Micronutrients		0.00200	0.00005	0.00008	0.00001	0.00200	0.00200	0.00000	0.00000	0.00414
Mn		0.00007	0.00000	0.00000	0.00000	0.00006	0.00006	0.00000	0.00000	0.00013
NPK as N		0.03010	0.00100	0.00200	0.00030	0.03010	0.04000	0.00000	0.00000	0.07340
NPK for P2O5		0.01000	0.00030	0.00040	0.00009	0.01000	0.01000	0.00000	0.00000	0.02079
P2O5 - 1		3.01000	0.07000	0.10000	0.01000	3.00000	3.00000	0.00007	0.00003	6.18000
Potash		0.00010	0.00000	0.00000	0.00000	0.00009	0.00010	0.00000	0.00000	0.00020
S as Nutrient		0.00500	0.00010	0.00020	0.00004	0.00600	0.00500	0.00000	0.00000	0.01134
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00400	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
Grand Island, NE		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00040	0.00001	0.00001	0.00000	0.00040	0.00040	0.00000	0.00000	0.00082
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.09000	0.00101	0.00300	0.00060	0.07000	0.09000	0.00000	0.00000	0.16461
	Micronutrients	0.00070	0.00001	0.00002	0.00000	0.00060	0.00040	0.00000	0.00000	0.00103
	Mn	0.00003	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	NPK as N	0.01000	0.00030	0.00050	0.00008	0.01000	0.01000	0.00000	0.00000	0.02088
	NPK for P2O5	0.00400	0.00010	0.00010	0.00002	0.00400	0.00401	0.00000	0.00000	0.00823
	P2O5 - 1	0.90100	0.02000	0.03000	0.00400	0.80000	0.90100	0.00004	0.00003	1.75500
	Potash	0.00005	0.00000	0.00000	0.00000	0.00003	0.00004	0.00000	0.00000	0.00007
	S as Nutrient	0.00200	0.00003	0.00006	0.00001	0.00101	0.00200	0.00000	0.00000	0.00311
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00100	0.00005	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00211

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Harrisburg, PA	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00020	0.00000	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	0.03010	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00401	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
	NPK for P2O5	0.00200	0.00004	0.00006	0.00001	0.00200	0.00200	0.00000	0.00000	0.00411
	P2O5 - 1	0.40000	0.00900	0.01000	0.00101	0.30100	0.40100	0.00010	0.00001	0.72201
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	S as Nutrient	0.00070	0.00001	0.00002	0.00000	0.00050	0.00070	0.00000	0.00000	0.00124
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00060	0.00002	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00104
	Hartford, CT	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.03000	0.00050	0.00100	0.00020	0.02000	0.03010	0.00001	0.00000	0.05180
Micronutrients		0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00041
Mn		0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
NPK as N		0.00400	0.00010	0.00020	0.00003	0.00400	0.00400	0.00000	0.00000	0.00833
NPK for P2O5		0.00100	0.00004	0.00005	0.00001	0.00100	0.00200	0.00000	0.00000	0.00310
P2O5 - 1		0.30000	0.00701	0.01000	0.00100	0.30000	0.30100	0.00010	0.00000	0.61901
Potash		0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
S as Nutrient		0.00060	0.00001	0.00002	0.00000	0.00050	0.00060	0.00000	0.00000	0.00113
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00050	0.00002	0.00002	0.00000	0.00050	0.00040	0.00000	0.00000	0.00094
Houston, TX		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00020	0.00000	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	0.03010	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00401	0.00010	0.00020	0.00003	0.00400	0.00401	0.00000	0.00000	0.00834
	NPK for P2O5	0.00200	0.00004	0.00006	0.00001	0.00200	0.00200	0.00000	0.00000	0.00411
	P2O5 - 1	0.40000	0.00802	0.01000	0.00101	0.30100	0.40000	0.00008	0.00000	0.72003
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00070	0.00001	0.00002	0.00000	0.00060	0.00060	0.00000	0.00000	0.00124
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00060	0.00002	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00104

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00010	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	0.03000	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00400	0.00010	0.00020	0.00003	0.00400	0.00401	0.00000	0.00000	0.00834
	NPK for P2O5	0.00200	0.00005	0.00007	0.00001	0.00200	0.00200	0.00000	0.00000	0.00413
	P2O5 - 1	0.40000	0.00901	0.01000	0.00100	0.30100	0.40100	0.00007	0.00001	0.72201
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00060	0.00001	0.00003	0.00000	0.00060	0.00060	0.00000	0.00000	0.00125
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00050	0.00002	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00105
	Las Vegas, NV	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00100	0.00003	0.00004	0.00001	0.00100	0.00100	0.00000	0.00000	0.00208
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.30000	0.00500	0.01000	0.00200	0.20100	0.20100	0.00001	0.00000	0.41900
Micronutrients		0.00200	0.00004	0.00007	0.00001	0.00200	0.00200	0.00000	0.00000	0.00412
Mn		0.00007	0.00000	0.00000	0.00000	0.00005	0.00005	0.00000	0.00000	0.00010
NPK as N		0.03010	0.00090	0.00200	0.00030	0.03010	0.04000	0.00000	0.00000	0.07330
NPK for P2O5		0.01000	0.00030	0.00030	0.00009	0.01000	0.01000	0.00000	0.00000	0.02069
P2O5 - 1		3.00000	0.07000	0.08010	0.01000	3.00000	2.01000	0.00007	0.00005	5.17010
Potash		0.00010	0.00000	0.00000	0.00000	0.00009	0.00010	0.00000	0.00000	0.00020
S as Nutrient		0.00500	0.00010	0.00020	0.00004	0.00500	0.00500	0.00000	0.00000	0.01034
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00400	0.00010	0.00020	0.00003	0.00400	0.00400	0.00000	0.00000	0.00833
Los Angeles, CA		Boron	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00060	0.00002	0.00002	0.00000	0.00050	0.00060	0.00000	0.00000	0.00115
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.10000	0.00201	0.00502	0.00090	0.10000	0.20000	0.00000	0.00000	0.30793
	Micronutrients	0.00100	0.00002	0.00003	0.00001	0.00100	0.00070	0.00000	0.00000	0.00176
	Mn	0.00004	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006
	NPK as N	0.02000	0.00050	0.00100	0.00010	0.02000	0.02000	0.00000	0.00000	0.04160
	NPK for P2O5	0.00600	0.00020	0.00020	0.00004	0.00601	0.00700	0.00000	0.00000	0.01345
	P2O5 - 1	1.00000	0.04000	0.05010	0.00600	1.00000	2.00000	0.00003	0.00001	3.09610
	Potash	0.00007	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00011
	S as Nutrient	0.00201	0.00006	0.00010	0.00001	0.00200	0.00300	0.00000	0.00000	0.00517
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00200	0.00007	0.00009	0.00002	0.00200	0.00200	0.00000	0.00000	0.00418

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00010	0.00000	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	0.02000	0.00050	0.00100	0.00010	0.02000	0.03000	0.00001	0.00000	0.05160
	Micronutrients	0.00020	0.00001	0.00001	0.00000	0.00020	0.00010	0.00000	0.00000	0.00031
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00300	0.00009	0.00020	0.00002	0.00300	0.00301	0.00000	0.00000	0.00632
	NPK for P2O5	0.00100	0.00004	0.00006	0.00001	0.00100	0.00100	0.00000	0.00000	0.00211
	P2O5 - 1	0.30000	0.00701	0.01000	0.00100	0.30000	0.40000	0.00008	0.00000	0.71801
	Potash	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00040	0.00001	0.00002	0.00000	0.00040	0.00050	0.00000	0.00000	0.00093
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00040	0.00001	0.00002	0.00000	0.00040	0.00040	0.00000	0.00000	0.00083
	Miami, FL	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.03000	0.00050	0.00090	0.00020	0.02010	0.03000	0.00001	0.00000	0.05170
Micronutrients		0.00020	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00041
Mn		0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
NPK as N		0.00400	0.00008	0.00020	0.00003	0.00300	0.00400	0.00000	0.00000	0.00731
NPK for P2O5		0.00100	0.00003	0.00004	0.00001	0.00100	0.00100	0.00000	0.00000	0.00208
P2O5 - 1		0.30000	0.00700	0.00901	0.00100	0.20100	0.30000	0.00006	0.00000	0.51801
Potash		0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
S as Nutrient		0.00060	0.00001	0.00002	0.00000	0.00040	0.00050	0.00000	0.00000	0.00093
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00050	0.00001	0.00001	0.00000	0.00040	0.00040	0.00000	0.00000	0.00082
Minneapolis, MN		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00030	0.00001	0.00001	0.00000	0.00030	0.00030	0.00000	0.00000	0.00062
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.07000	0.00100	0.00301	0.00050	0.06010	0.09010	0.00001	0.00000	0.15471
	Micronutrients	0.00060	0.00001	0.00002	0.00000	0.00050	0.00040	0.00000	0.00000	0.00093
	Mn	0.00002	0.00000	0.00000	0.00000	0.00002	0.00002	0.00000	0.00000	0.00004
	NPK as N	0.00900	0.00030	0.00050	0.00006	0.00900	0.01000	0.00000	0.00000	0.01986
	NPK for P2O5	0.00300	0.00010	0.00020	0.00002	0.00400	0.00400	0.00000	0.00000	0.00832
	P2O5 - 1	0.80000	0.02010	0.03010	0.00300	0.80000	1.00000	0.00007	0.00002	1.85320
	Potash	0.00004	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006
	S as Nutrient	0.00100	0.00003	0.00007	0.00001	0.00100	0.00100	0.00000	0.00000	0.00211
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00100	0.00004	0.00006	0.00001	0.00100	0.00100	0.00000	0.00000	0.00211



99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00010	0.00000	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	0.03000	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00400	0.00010	0.00020	0.00003	0.00400	0.00400	0.00000	0.00000	0.00833
	NPK for P2O5	0.00200	0.00004	0.00006	0.00001	0.00200	0.00200	0.00000	0.00000	0.00411
	P2O5 - 1	0.30100	0.00800	0.01000	0.00100	0.30100	0.40000	0.00010	0.00000	0.72000
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00060	0.00001	0.00002	0.00000	0.00050	0.00060	0.00000	0.00000	0.00113
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00050	0.00002	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00104
	Phoenix, AZ	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00100	0.00003	0.00004	0.00001	0.00100	0.00100	0.00000	0.00000	0.00208
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.20000	0.00500	0.00901	0.00200	0.30000	0.30000	0.00001	0.00000	0.61601
Micronutrients		0.00200	0.00004	0.00007	0.00001	0.00200	0.00200	0.00000	0.00000	0.00412
Mn		0.00007	0.00000	0.00000	0.00000	0.00005	0.00006	0.00000	0.00000	0.00011
NPK as N		0.03010	0.00090	0.00200	0.00030	0.03000	0.04000	0.00000	0.00000	0.07320
NPK for P2O5		0.01000	0.00030	0.00040	0.00008	0.01000	0.01000	0.00000	0.00000	0.02078
P2O5 - 1		3.00000	0.07000	0.09000	0.01000	3.00000	3.00000	0.00008	0.00004	6.17000
Potash		0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
S as Nutrient		0.00500	0.00010	0.00020	0.00004	0.00501	0.00500	0.00000	0.00000	0.01035
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00400	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
Portland, ME		Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Gypsum Products	0.00010	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.02000	0.00050	0.00100	0.00010	0.02000	0.03000	0.00001	0.00000	0.05160
	Micronutrients	0.00020	0.00001	0.00001	0.00000	0.00020	0.00010	0.00000	0.00000	0.00031
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
	NPK as N	0.00300	0.00008	0.00020	0.00002	0.00300	0.00301	0.00000	0.00000	0.00631
	NPK for P2O5	0.00100	0.00004	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00210
	P2O5 - 1	0.20100	0.00701	0.01000	0.00100	0.20100	0.30100	0.00008	0.00000	0.52001
	Potash	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	S as Nutrient	0.00040	0.00001	0.00002	0.00000	0.00040	0.00040	0.00000	0.00000	0.00083
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00040	0.00001	0.00002	0.00000	0.00040	0.00040	0.00000	0.00000	0.00083

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00010	0.00001	0.00001	0.00000	0.00010	0.00020	0.00000	0.00000	0.00031
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.03000	0.00080	0.00200	0.00020	0.03000	0.04010	0.00001	0.00000	0.07310
	Micronutrients	0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
	Mn	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002
	NPK as N	0.00400	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
	NPK for P2O5	0.00200	0.00005	0.00009	0.00001	0.00200	0.00200	0.00000	0.00000	0.00415
	P2O5 - 1	0.30100	0.01000	0.01010	0.00100	0.40000	0.50000	0.00009	0.00000	0.92110
	Potash	0.00002	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
	S as Nutrient	0.00060	0.00002	0.00004	0.00000	0.00060	0.00070	0.00000	0.00000	0.00136
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00050	0.00002	0.00003	0.00000	0.00050	0.00050	0.00000	0.00000	0.00106
	Salem, OR	Boron	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Gypsum Products		0.00020	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		0.03010	0.00060	0.00100	0.00020	0.03000	0.04000	0.00001	0.00000	0.07180
Micronutrients		0.00030	0.00001	0.00001	0.00000	0.00020	0.00020	0.00000	0.00000	0.00042
Mn		0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001
NPK as N		0.00401	0.00010	0.00020	0.00003	0.00400	0.00500	0.00000	0.00000	0.00933
NPK for P2O5		0.00200	0.00004	0.00006	0.00001	0.00200	0.00200	0.00000	0.00000	0.00411
P2O5 - 1		0.40000	0.00901	0.01000	0.00101	0.30100	0.40100	0.00010	0.00001	0.72202
Potash		0.00002	0.00000	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000	0.00003
S as Nutrient		0.00070	0.00001	0.00003	0.00000	0.00060	0.00070	0.00000	0.00000	0.00134
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00060	0.00002	0.00002	0.00000	0.00050	0.00050	0.00000	0.00000	0.00105
Salt Lake City, UT		Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
	Gypsum Products	0.00101	0.00003	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00209
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.30000	0.00601	0.01010	0.00200	0.30000	0.40000	0.00001	0.00000	0.71811
	Micronutrients	0.00200	0.00005	0.00009	0.00002	0.00200	0.00200	0.00000	0.00000	0.00416
	Mn	0.00008	0.00000	0.00000	0.00000	0.00006	0.00007	0.00000	0.00000	0.00014
	NPK as N	0.04000	0.00100	0.00201	0.00030	0.04000	0.05000	0.00000	0.00000	0.09331
	NPK for P2O5	0.01000	0.00040	0.00050	0.00009	0.02000	0.02000	0.00000	0.00000	0.04099
	P2O5 - 1	3.00000	0.09010	0.10000	0.01000	3.01000	3.00000	0.00009	0.00005	6.21010
	Potash	0.00020	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00021
	S as Nutrient	0.00501	0.00020	0.00030	0.00004	0.00700	0.00600	0.00000	0.00000	0.01354
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00500	0.00020	0.00020	0.00004	0.00500	0.00500	0.00000	0.00000	0.01044

99th Percentile Risks from Application of Fertilizer Products  
Chromium (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	0.00001	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00001
	Gypsum Products	0.00070	0.00002	0.00002	0.00000	0.00060	0.00060	0.00000	0.00000	0.00124
	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Liming Materials	0.10000	0.00300	0.00601	0.00100	0.10000	0.20000	0.00000	0.00000	0.31001
	Micronutrients	0.00100	0.00003	0.00003	0.00001	0.00100	0.00080	0.00000	0.00000	0.00187
	Mn	0.00004	0.00000	0.00000	0.00000	0.00003	0.00003	0.00000	0.00000	0.00006
	NPK as N	0.02000	0.00050	0.00090	0.00010	0.02000	0.02000	0.00000	0.00000	0.04150
	NPK for P2O5	0.00700	0.00020	0.00020	0.00004	0.00701	0.00800	0.00000	0.00000	0.01545
	P2O5 - 1	2.00000	0.04010	0.05000	0.00700	1.00000	1.01000	0.00004	0.00005	2.10710
	Potash	0.00007	0.00000	0.00000	0.00000	0.00005	0.00007	0.00000	0.00000	0.00012
	S as Nutrient	0.00300	0.00007	0.00010	0.00002	0.00201	0.00300	0.00000	0.00000	0.00520
	S as Ph	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	0.00201	0.00007	0.00008	0.00002	0.00200	0.00200	0.00000	0.00000	0.00417
	Winnemucca, NV	Boron	0.00001	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000
Gypsum Products		0.00090	0.00002	0.00003	0.00001	0.00070	0.00090	0.00000	0.00000	0.00166
Iron		NA	NA	NA	NA	NA	NA	NA	NA	NA
Liming Materials		0.20000	0.00400	0.00800	0.00100	0.20000	0.20000	0.00001	0.00000	0.41300
Micronutrients		0.00200	0.00003	0.00005	0.00001	0.00100	0.00100	0.00000	0.00000	0.00209
Mn		0.00006	0.00000	0.00000	0.00000	0.00004	0.00004	0.00000	0.00000	0.00008
NPK as N		0.03000	0.00070	0.00100	0.00020	0.02000	0.03000	0.00000	0.00000	0.05190
NPK for P2O5		0.00900	0.00020	0.00020	0.00007	0.01000	0.00901	0.00000	0.00000	0.01948
P2O5 - 1		2.00000	0.05000	0.06000	0.01000	2.00000	2.00000	0.00004	0.00003	4.12000
Potash		0.00009	0.00000	0.00000	0.00000	0.00007	0.00009	0.00000	0.00000	0.00016
S as Nutrient		0.00400	0.00010	0.00010	0.00003	0.00300	0.00400	0.00000	0.00000	0.00723
S as Ph		NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc		0.00300	0.00010	0.00010	0.00002	0.00300	0.00300	0.00000	0.00000	0.00622

<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.