

Elemental Analysis Manual

for Food and Related Products

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3.7 Typical Element Concentrations

Version 1.0 (June 2008)
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This section provides sources of information on the levels of elements in food.

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GLOSSARY

3.7.1 U. S. FOOD AND DRUG ADMINISTRATION

3.7.1.1. Total Diet Study

Analytical Results (Accessed January 19, 2010) (*link removed*) [Elements reported: arsenic, cadmium, calcium, copper, iodine, iron, lead, magnesium, manganese, mercury, nickel, phosphorus, potassium, selenium, sodium and zinc.]

Publications

- Capar, S. G., and Cunningham, W. C. (2000) Element and Radionuclide Concentrations in Food: FDA Total Diet Study 1991-1996, *J. AOAC Int.* **83**, 157-177. [Elements reported: arsenic, cadmium, calcium, copper, iron, lead, magnesium, manganese, mercury, nickel, phosphorus, potassium, selenium, sodium and zinc.]
- Anderson, D. L., Cunningham, W. C., and Lindstrom, T. R. (1994) Concentrations and Intakes of H, B, S, K, Na, Cl, and NaCl in Foods, *J. Food Compos. Anal.* **7**, 59-82.
- Pennington, J. A. T., and Jones, J. W. (1989) Dietary Intake of Aluminum, in *Aluminum and Health - A Critical Review*, Hillel J. Gitelman (Ed.), Marcel Dekker, New York, pages 67-100
- Cunningham, W. C., and Stroube, W. B. (1987) Application of an Instrumental Neutron Activation Analysis Procedure to Analysis of Food, *Sci. Total Environ.* **63**, 29-43. [Elements reported: silver, bromine, calcium, chlorine, cobalt, chromium, cesium, copper, iron, potassium, magnesium, manganese, sodium, rubidium, antimony, scandium, selenium, vanadium and zinc.]
- Pennington, J. A. T., and Jones, J. W. (1987) Molybdenum, Nickel, Cobalt, Vanadium, and Strontium in Total Diets, *J. Am. Diet. Assoc.* **87**, 1644-1650.

3.7.1.2. Food Surveys

- Mercury in Fish: FDA Monitoring Program (1990-2004) (Accessed January 21, 2010) (*link removed*) [Information on mercury and methylmercury.]
- Mercury Levels in Commercial Fish and Shellfish (Accessed January 19, 2010) (*link removed*) [Information on mercury and methylmercury.]

3.7.2 U. S. DEPARTMENT OF AGRICULTURE

3.7.2.1. Food Composition

- U.S. Department of Agriculture, Agricultural Research Service (2009) *USDA Nutrient Database for Standard Reference, Release 22*. Nutrient Data Laboratory Home Page, <<http://www.ars.usda.gov/nutrientdata>> (Accessed January 19, 2010) (*link removed*) Note: Release numbers change as new versions are released. [Information on calcium, iron, magnesium, phosphorus, potassium, sodium, zinc, copper, manganese and selenium.]

3.7.3 FOOD STANDARDS AGENCY (UNITED KINGDOM)

3.7.3.1. Total Diet Study

- 2000 Total Diet Study of 12 Elements (2004) (Accessed January 19, 2010) (*link removed*). [Information on aluminum, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, tin and zinc.]
- Total and Inorganic Arsenic in the 1999 Total Diet Study (2004) (Accessed January 19, 2010) (*link removed*).
- Uranium-238 in the 2001 Total Diet Study (2004) (Accessed January 19, 2010) (*link removed*).
- 1997 Total Diet Study-Fluorine, Bromine and Iodine (2000) (Accessed January 19, 2010) (*link removed*).

3.7.3.2. Food Surveys

- Elemental results available on various food surveys (Accessed January 19, 2010) (*link removed*). [Information on aluminum, antimony, arsenic (total and inorganic), cadmium, chromium, copper, iodine, iron, lead, manganese, mercury, nickel, platinum, selenium, thallium, tin (total and organotins), titanium, uranium and zinc.]

3.7.4 FOOD STANDARDS AUSTRALIA NEW ZEALAND

3.7.4.1. Total Diet Study

- The Australian Total Diet Study—A total diet survey of pesticide residues and contaminants, 22nd (2008), 20th (2003) and 19th (2001) (Accessed January 19, 2010) (*link removed*). [Elements reported: antimony, arsenic (total and inorganic), cadmium, chromium, copper, iodine, lead, mercury (total and organic), molybdenum, nickel, selenium, tin (total and butyltins) and zinc.]

3.7.4.2. Food Composition

- Nutrient Tables for use in Australia, 2006 (NUTTAB 2006) (Accessed January 10, 2010) (*link removed*) [Elements reported: aluminum, antimony, arsenic, cadmium, calcium, chromium, cobalt, copper, fluoride, iodine, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, sodium, sulfur, tin, zinc.]

3.7.5 HEALTH CANADA

3.7.5.1. Total Diet Study

- Concentration of Contaminants & Other Chemicals in Food Composites (Accessed January 19, 2010) (*link removed*) [Elements reported: aluminum, barium, bismuth, cadmium, cerium, cobalt, copper, lanthanum, manganese, molybdenum, lead, rubidium, strontium, thallium, yttrium and zinc.]