

Manganese Fact Sheet

Manganese is one of the most abundant naturally occurring metals in the Earth's crust and is normally found in rocks, soil, water, air, and many food sources. Manganese can also be released into the natural environment from industrial processes and products, such as the manufacturing of steel alloys or as a fuel additive/octane enhancer. Manganese is necessary for the proper function of many organ systems. The major source of intake by the general population is from food and manganese-containing nutritional supplements. Manganese exposure from drinking water can also be an important source of its intake and it is more easily absorbed from water than food. For the general population, inhalation exposure to manganese is of lesser concern except for areas in close proximity to manganese industrial emissions, where it can be present in air in the form of dust particles and/or exposure to fumes from hobbies such as welding at home. Inhalation exposure would be higher among individuals who work with manganese as part of their job.

Manganese is found in:

- Some foods, including:
 - o Nuts and nut products.
 - o Grains and grain products.
 - o Beans.
 - o Leafy vegetables.
 - o Fruits, fruit juices and drinks.
- Teas, including herbal teas.
- Some vitamins or nutritional supplements.
- Some drinking water sources, especially from:
 - o Surface and ground water, if low oxygen conditions exist.
 - o Private wells in areas known to have high levels of manganese in the rocks and soil or near industrial sources.
- Certain metal alloys, specifically steel.
- A variety of consumer products, such as fireworks, dry-cell batteries, fertilizer, manganese-based pesticides (Maneb and Mancozeb), paints, and some cosmetics.
- Some welding rods.
- Some industrial processes, such as mining activities, gasoline refineries, and/or emissions from coke ovens and power plants.

Possible health concerns from excessive exposure to manganese:

- Inhaling high-levels of manganese for a long period of time (usually more than 2-5 years) in a work setting can produce neurotoxicity, known as manganism. Symptoms include muscle weakness, tremors, lack of appetite and excessive weight loss, muscle pain, apathy, slow speech, emotionless “mask-like” facial expression, lower limb rigidity, and difficulty walking.
- We do not know how common manganism is among the general population of the state. Furthermore, we cannot determine with available data what level of exposure to manganese would cause this disease to develop.
- There is not much data on health effects from ingesting manganese, but:
 - o Consuming water with manganese at concentrations below 0.3 mg/L over a lifetime is considered safe.
 - o Consuming water with manganese at higher concentrations (> 2 mg/L) over a long period of time (10 years or more) may result in some neurological symptoms like weakness/fatigue, gait disturbances, and/or tremors.

Possible actions one can take to reduce excessive exposure to manganese:

- Maintain a balanced diet for you and your children.
- If you do any metal working or welding, use appropriate protective equipment and make sure the area is ventilated.
- Keep children away from metal working/welding areas, including fumes and dusts.
- If you work with manganese, take all precautions to avoid bringing manganese-containing dust home on your clothing, skin, hair, or tools.

For more information, visit: <http://www.atsdr.cdc.gov/toxfaqs/tfacts151.pdf> or <http://www.atsdr.cdc.gov/toxprofiles/tp151.pdf> or www.4csbc.org/pages/manganese.html

For information about well testing and maintaining a well, visit: <https://nmtracking.org/water>

For any other questions, please call 1-888-878-8992

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