



Updated Public Health Goal for Drinking Water: Perchlorate

A fact sheet by the Office of Environmental Health Hazard Assessment, California Environmental Protection Agency

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The Office of Environmental Health Hazard Assessment (OEHHA) has adopted an updated public health goal (PHG) of 1 part per billion (ppb) for perchlorate in drinking water. The previous PHG for perchlorate was set at 6 ppb in 2004.

Q. What is perchlorate and why is it in drinking water?

A. Perchlorate is a chemical found throughout our environment. It may occur naturally as a result of lightning or sunlight interacting with chemicals in the atmosphere and may then be carried to the ground by rain and into soil. Industrially, perchlorate propellants have been used in rocket fuel, road flares, fireworks, and vehicle air bags. In some instances, prior disposal practices led to the leaking of propellant containing perchlorate into the soil, where it persists without breaking down. Once in the soil, perchlorate can slowly migrate to water sources that some people may use for drinking.

Q. What are the health effects of perchlorate?

A. Extensive studies of perchlorate have shown that at sufficient levels perchlorate can block the thyroid's ability to take in iodide. The major function of the thyroid is to produce thyroid hormone. Because iodide is an integral component of thyroid hormone, blocking its uptake into the thyroid gland can result in decreased production of thyroid hormone. This can be important because thyroid hormone is involved in many critical body functions, including brain and neurological development.

Infants and fetuses may be particularly susceptible to perchlorate or any alteration in thyroid hormone production. First, fetal and infant brains and nervous systems are rapidly developing and are critically dependent on thyroid hormone. Second, many infants and pregnant women—and consequently the fetus—may not be getting enough iodide, making them especially susceptible to chemicals like perchlorate that can further reduce iodide levels in the thyroid. Third, infants have much less thyroid hormone in reserve than adults, so they may be less able to adapt to periods when iodide levels might be low.

Q. What is a Public Health Goal?

A. A Public Health Goal or PHG is a level of drinking water contaminant at which adverse health effects are not expected to occur from a lifetime of exposure. State law requires OEHHA to develop PHGs based exclusively on public health considerations. A PHG is not a regulatory standard. PHGs published by OEHHA are considered by the State Water Resources Control Board (SWRCB) in setting drinking water standards (Maximum Contaminant Levels, or MCLs). The current MCL for perchlorate was set at 6 ppb in 2007. For more information on PHGs, please visit: <http://oehha.ca.gov/water/guide-public-health-goals-chemicals-drinking-water>.

State law requires the SWRCB's Division of Drinking Water to set each MCL as close to the corresponding PHG as is economically and technologically feasible and to place primary

emphasis on public health. More information about MCLs is available at http://www.waterboards.ca.gov/drinkingwater/docs/taskforce/mcl_overview_taskforce_v2.pdf.

Q. Why did OEHHA update the PHG for perchlorate?

A. OEHHA updated the PHG to 1 ppb to reflect current science on the health impacts of perchlorate on infants, and the amount of water they consume. It received extensive public comment and scientific peer review.

Both the original and the updated PHGs for perchlorate account for exposure to perchlorate from non-drinking water sources, including foods. The lowering of the PHG does not suggest any food is unsafe or that the public should change its dietary habits.

Q. How does OEHHA establish a PHG?

A. The process for establishing a PHG is detailed and rigorous. First, OEHHA scientists compile all relevant scientific information available. This includes studies of the chemical's effect on laboratory animals and humans, as well as many other types of scientific data.

Based on a thorough review of this information, OEHHA scientists identify the health effects that are likely associated with the chemical, and identify the types of people (such as infants and pregnant women) who may be particularly susceptible to these effects. The relevant scientific information is then used to identify or estimate the levels of the chemical in drinking water that would pose no significant health risk to individuals consuming the water on a daily basis over a lifetime.

Q. Is drinking water dangerous if it contains a contaminant that exceeds the PHG?

A. A PHG is not a boundary line between a “safe” and “dangerous” level of a contaminant. Rather, a PHG is a health-protective level of a contaminant in drinking water that California’s public water systems should strive to achieve when it is technologically and economically feasible to do so. Drinking water still can be acceptable for public consumption if it contains contaminants at levels higher than the PHG.

Q. Is there a federal standard for perchlorate in drinking water?

A. No. The federal government has not issued a drinking water standard for perchlorate.

Q. Where can I find additional information?

A. Local public water systems, county health or environmental departments also are good sources for information about contaminants in your local drinking water supply. Your water bill lists contact information, or the information may be posted online and available to search engines.

State law requires public water systems to send customers an annual consumer confidence report that describes the source of the water and any contaminants detected. The report should list the current level of contaminants, their PHGs and their primary MCLs. The report will also disclose if contamination is higher than the MCL and include a statement explaining any health concerns.

If your source of drinking water is a private well, contact your county health or environmental health department for water quality standards and testing information.