# Maximum Contaminant Levels (MCLs) for Drinking Water

**Notes:** **mg/l** (milligrams per liter) is same as **ppm** (parts per million).
**Primary MCL** refers to health-related effects.
**Secondary MCL** refers to cosmetic (skin or tooth discoloration) or aesthetic (taste, odor, or color) effects.
For more detailed information, go to the EPA website www.epa.gov/safewater.

| Parameter | Primary MCL | Secondary MCL | Potential Effects |
|---|---|---|---|
| **Alkalinity** | None | None | Alkalinity is influenced by local rock type and reflects the chemical properties of dissolved constituents. |
| **Arsenic** | **0.01 mg/l** | None | Arsenic is a carcinogen. |
| **Barium** | **2 mg/l** | None | Can cause increase in blood pressure. |
| **Cadmium** | **0.005 mg/l** | None | Can cause liver damage. |
| **Calcium** | None | None | |
| **Chromium** | **0.1 mg/l** | None | Can cause allergic dermatitis. |
| **Chloride** | **250 mg/l** | None | Chloride can affect taste, and can indicate salt water intrusion. |
| **Copper** | **1.3 mg/l** | **1.0 mg/l** | In large doses, copper is dangerous to infants and people with certain metabolic disorders. However, lack of copper intake causes anemia, growth inhibition, and problems with blood circulation. |
| **Fluoride** | **4.0 mg/l** | **2.0 mg/l** | Fluoride in concentrations above 4 mg/l can cause skeletal damage. Fluoride in concentrations above 2 mg/l can cause staining. |
| **Hardness** | None | None | Indicates the presence of dissolved ions in water. |
| **Iron** | None | **0.30 mg/l** | Iron may contribute to bad taste, pipe clogging, and clothes, tub, sink, and teeth staining. |
| **Lead** | **0.015 mg/l** (action level) | None | Lead can cause neurological and physical problems, especially in young children. |
| **Magnesium** | None | None | |
| **Manganese** | None | **0.05 mg/l** | In large doses, manganese can cause headaches, apathy, irritability, insomnia, and weakness of the legs. Long-term heavy exposure may result in nervous-system disorders. |
| **Mercury** | **0.002 mg/l** | None | Can cause kidney damage. |
| **Nitrate** | **10.0 mg/l** | None | Nitrates and Nitrites can cause shortness of breath and "blue baby syndrome" in children under the age of 6 months. |
| **Nitrite** | **1.0 mg/l** | None | Nitrites and Nitrates can cause shortness of breath and "blue baby syndrome" in children under the age of 6 months. |
| **pH** | None | **6.5-8.5** | Low pH (less than 6.5) can contribute to the corrosiveness of water and can allow leaching of impurities from pipes into drinking water. |
| **Selenium** | **0.05 mg/l** | None | Too much selenium can cause hair or fingernail loss, numbness in fingers or toes, and circulatory problems. |
| **Silver** | None | **0.10 mg/l** | Silver can cause skin discoloration (Argyria) if ingested. Additionally, silver is used as an antibacterial agent in home water treatment systems. |
| **Sodium** | None | None | Water softeners can contribute to the level of sodium in water. |
| **Zinc** | None | **5.0 mg/l** | More than 5.0 mg/l causes a metallic bitter taste and 25 – 40 mg/l may cause nausea and vomiting. |

**Sources:** North Carolina Cooperative Extension Service special project number 91-EWQI-1-9274.
Environmental Engineering and Sanitation, Third Edition; Joseph A. Salvato, P.E..
EPA National Primary Drinking Water Standards June 2003; from www.epa.gov/safewater.

DEH's On-Site Water Supply Branch appreciates the efforts of Mr. Mark Murosky, Craven County Health Department, in the development of this table.