

# EWG DRINKING WATER STANDARDS



## No-Compromise Benchmarks to Fully Protect Public Health

Health guidelines listed in the EWG Tap Water Database represent the maximum concentration of a contaminant in water that scientists consider safe. This value is based only on protecting health and does not consider technical feasibility or the cost of water treatment. This table includes health guidelines published by federal or state health and environmental agencies, or developed by EWG scientists based on the best and most recent research.

More details on health guideline selections are available in the [Data Sources](#) and [Methodology](#) sections.

**Units used in the table:** parts per million (ppm); parts per billion (ppb); picocuries per liter (pCi/L)

Updated November 2021

CONTAMINANT (IN ALPHABETICAL ORDER)	FEDERAL LEGAL LIMIT	EWG STANDARD	SOURCE OF STANDARD	HEALTH EFFECTS
1,1-Dichloroethane	Nonexistent	3 ppb	California public health goal	Cancer; change to the heart and blood vessels
1,1,2-Trichloroethane	5 ppb	0.3 ppb	California public health goal	Liver cancer; harm to the kidney; change to the central nervous system
1,2-Dibromo-3-chloropropane	0.2 ppb	0.0017 ppb	California public health goal	Testicular cancer; harm to the male reproductive system; infertility
1,2-Dichloroethane	5 ppb	0.4 ppb	California public health goal	Cancer; harm to the immune system; harm to the stomach and intestines; harm to the liver; harm to the kidney; harm to the brain and nervous system
1,2-Dichloropropane	5 ppb	0.5 ppb	California public health goal	Liver cancer; harm to the liver; harm to the kidney; change to blood cells
1,2,3-Trichloropropane	Nonexistent	0.0007 ppb	California public health goal	Cancer
1,2,4-Trichlorobenzene	70 ppb	5 ppb	California public health goal	Harm to the adrenal gland; cancer
1,3-Butadiene	Nonexistent	0.0103 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the Environmental Protection Agency	Cancer; harm to the brain and nervous system; harm to reproduction and child development; change to blood cells; change to the kidney

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<b>1,4-Dioxane</b>	Nonexistent	0.35 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the Environmental Protection Agency	Cancer; irritation of the lungs; harm to the kidney
<b>p-Dichlorobenzene</b>	75 ppb	6 ppb	California public health goal	Cancer; harm to the liver; harm to the kidney; harm to the thyroid
<b>2,4-D (2,4-dichlorophenoxyacetic acid)</b>	70 ppb	20 ppb	California public health goal	Hormone disruption; harm to the liver; harm to the kidney; harm to the thyroid; harm to the brain and nervous system; change to immune system function
<b>Aluminum</b>	Nonexistent	600 ppb	California public health goal	Harm to the brain and nervous system
<b>Antimony</b>	6 ppb	1 ppb	California public health goal	Harm to the liver; change to the stomach and intestines
<b>Arsenic</b>	10 ppb	0.004 ppb	California public health goal	Cancer; harm to the central nervous system; harm to the brain and nervous system; skin damage; change to the heart and blood vessels; increase the risk of heart disease, stroke and diabetes
<b>Atrazine</b>	3 ppb	0.1 ppb	EWG-recommended health guideline	Harm to the developing fetus; hormone disruption; harm to the reproductive system; changes in the nervous system; changes in brain and behavior; cancer
<b>Barium</b>	2 ppm	0.7 ppm	Children's health-based limit for 10-day exposure, as defined by the Environmental Protection Agency	Harm to the kidney; high blood pressure; harm to the heart and blood vessels
<b>Benzene</b>	5 ppb	0.15 ppb	California public health goal	Cancer; harm to blood cells; harm to the central nervous system; harm to child development; harm to the immune system

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<b>Benzo[a]pyrene</b>	0.2 ppb	0.007 ppb	California public health goal	Cancer; harm to the immune system; harm to reproduction and child development; change to the central nervous system
<b>Beryllium</b>	4 ppb	1 ppb	California public health goal	Harm to the stomach and intestines; harm to the lungs; harm to bones
<b>Bromate</b>	10 ppb	0.1 ppb	California public health goal	Cancer
<b>Bromochloroacetic acid</b>	Nonexistent	0.02 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth and development.
<b>Bromodichloroacetic acid</b>	Nonexistent	0.04 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth and development.
<b>Bromodichloromethane</b>	Nonexistent	0.4 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the California Office of Environmental Health Hazard Assessment	Cancer; harm to reproduction and child development; change to fetal growth and development
<b>Bromoform</b>	Nonexistent	5 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the California Office of Environmental Health Hazard Assessment	Cancer; harm to reproduction and child development; change to fetal growth and development
<b>Cadmium</b>	5 ppb	0.04 ppb	California public health goal	Cancer; harm to the kidney; change in behavior
<b>Carbofuran</b>	40 ppb	0.7 ppb	California public health goal	Harm to the brain and nervous system; harm to the reproductive system
<b>Carbon tetrachloride</b>	5 ppb	0.1 ppb	California public health goal	Cancer; harm to the liver; harm to the central nervous system; harm to the kidney; decrease in fertility

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<b>Chlorate</b>	Nonexistent	210 ppb	Health benchmark defined by the Environmental Protection Agency for testing under the Unregulated Contaminant Monitoring Rule program	Hormone disruption
<b>Chlordane</b>	2 ppb	0.03 ppb	California public health goal	Cancer; hormone disruption; harm to reproduction and child development
<b>Chlorodibromoacetic acid</b>	Nonexistent	0.02 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth and development
<b>Chlorite</b>	1 ppm	0.050 ppm	California public health goal	Change to blood cells; change to the thyroid; hormone disruption; harm to reproduction and child development
<b>Chloroform</b>	Nonexistent	1 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the California Office of Environmental Health Hazard Assessment	Cancer; harm to fetal growth and development
<b>Chloromethane</b>	Nonexistent	2.69 ppb	Health benchmark defined by the Environmental Protection Agency for testing under the Unregulated Contaminant Monitoring Rule program	Cancer
<b>Chromium (hexavalent)</b>	Nonexistent	0.02 ppb	California public health goal	Cancer; harm to the liver; harm to the reproductive system
<b>Cobalt</b>	Nonexistent	70 ppb	Health benchmark defined by the Environmental Protection Agency for testing under the Unregulated Contaminant Monitoring Rule program	Harm to the heart; change in blood chemistry; harm to the stomach and intestines

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<b>Copper</b>	Nonexistent	300 ppb	California public health goal	Diarrhea; weight loss; vomiting
<b>Cyanide</b>	200 ppb	150 ppb	California public health goal	Harm to the brain and nervous system; harm to the thyroid; harm to the central nervous system
<b>Di(2-ethylhexyl) adipate</b>	400 ppb	200 ppb	California public health goal	Change to fetal growth and development; harm to the liver
<b>Di(2-ethylhexyl) phthalate</b>	6 ppb	3 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the Environmental Protection Agency	Harm to the male reproductive system; harm to the immune system; change to fetal growth and development; hormone disruption
<b>Dibromoacetic acid</b>	Nonexistent	0.04 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth and development
<b>Dibromochloromethane</b>	Nonexistent	0.7 ppb	Contaminant concentration corresponding to a one-in-a-million lifetime risk of cancer, as defined by the California Office of Environmental Health Hazard Assessment	Cancer; harm to fetal growth and development
<b>Dichloroacetic acid</b>	Nonexistent	0.2 ppb	EWG-recommended health guideline	Cancer; harm to reproduction and child development
<b>p-Dichlorobenzene</b>	75 ppb	6 ppb	California public health goal	Cancer; harm to the liver; harm to the kidney; harm to the thyroid
<b>Dichloromethane (methylene chloride)</b>	5 ppb	4 ppb	California public health goal	Cancer; harm to reproduction and child development; harm to the liver
<b>Diquat</b>	20 ppb	6 ppb	California public health goal	Change to fetal growth and development; change in body weight; harm to the kidney; cataracts
<b>Endothall</b>	100 ppb	94 ppb	California public health goal	Change to the stomach and intestines; eye damage; skin irritation

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<b>Endrin</b>	2 ppb	0.3 ppb	California public health goal	Cancer; change to the central nervous system; harm to the immune system; harm to the reproductive system
<b>Ethylbenzene</b>	700 ppb	300 ppb	California public health goal	Cancer; harm to the lungs; harm to the liver; harm to the kidney; change to the central nervous system
<b>Ethylene dibromide</b>	0.05 ppb	0.01 ppb	California public health goal	Cancer; harm to the reproductive system; harm to the central nervous system; change to fetal growth and development
<b>Glyphosate</b>	700 ppb	5 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth; harm to the kidney
<b>Haloacetic acids (HAA5)</b>	60 ppb	0.1 ppb	EWG-recommended health guideline	Cancer; harm to fetal growth and development
<b>Heptachlor</b>	0.4 ppb	0.008 ppb	California public health goal	Cancer; hormone disruption; harm to the brain and nervous system
<b>Heptachlor epoxide</b>	0.2 ppb	0.006 ppb	California public health goal	Cancer; hormone disruption; harm to the liver
<b>Hexachlorobenzene</b>	1 ppb	0.03 ppb	California public health goal	Cancer; harm to the brain and nervous system; hormone disruption
<b>Hexachlorocyclopentadiene</b>	50 ppb	2 ppb	California public health goal	Harm to the stomach and intestines; change to the liver; change to the kidney; irritation of the lungs
<b>Lead</b>	15 ppb (federal action level for lead in drinking water)	0.2 ppb	California public health goal	Harm to the brain and nervous system
<b>Lindane</b>	0.2 ppb	0.032 ppb	California public health goal	Cancer; harm to the brain and nervous system; harm to the immune system
<b>Manganese</b>	Nonexistent	100 ppb	A risk assessment advisory level defined by the Minnesota Department of Health	Harm to the brain and nervous system; change in behavior

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<b>Mercury (inorganic)</b>	2 ppb	1.2 ppb	California public health goal	Harm to the brain and nervous system; harm to fetal growth and child development; harm to the kidney; harm to the immune system
<b>Methoxychlor</b>	40 ppb	0.09 ppb	California public health goal	Hormone disruption; harm to the reproductive system; harm to the kidney; harm to the liver; harm to the immune system; harm to the brain and nervous system
<b>Molybdenum</b>	Nonexistent	40 ppb	The Environmental Protection Agency health advisory for lifetime exposure	Change in blood chemistry; gout
<b>Monobromoacetic acid</b>	Nonexistent	25 ppb	EWG-recommended health guideline	Change to fetal growth and development
<b>Monochloroacetic acid</b>	Nonexistent	53 ppb	EWG-recommended health guideline	Change to fetal growth and development
<b>Monochlorobenzene (chlorobenzene)</b>	100 ppb	70 ppb	California public health goal	Harm to the liver; harm to the kidney
<b>MTBE</b>	Nonexistent	13 ppb	California public health goal	Cancer
<b>N-Nitrosodimethylamine (NDMA)</b>	Nonexistent	0.003 ppb	California public health goal	Cancer
<b>Nitrate (measured as Nitrogen)</b>	10 ppm	0.14 ppm	EWG-recommended health guideline	Cancer; harm to fetal growth and child development
<b>Oxamyl</b>	200 ppb	26 ppb	California public health goal	Harm to the central nervous system; harm to the brain and nervous system; harm to child development
<b>Pentachlorophenol</b>	1 ppb	0.3 ppb	California public health goal	Cancer; harm to child development; harm to the immune system; hormone disruption
<b>Perchlorate</b>	Nonexistent	1 ppb	California public health goal	Hormone disruption; harm to fetal growth and child development
<b>Perfluorobutane sulfonate (PFBS)</b>	Nonexistent	0.001 ppb	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver

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<b>Perfluoroheptanoic acid (PFHPA)</b>	Nonexistent	0.001 ppb	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver
<b>Perfluorohexane sulfonate (PFHXS)</b>	Nonexistent	0.001 ppb	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver
<b>Perfluorononanoic acid (PFNA)</b>	Nonexistent	0.001 ppb	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver
<b>Perfluorooctane sulfonate (PFOS)</b>	Nonexistent	0.001 ppb	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver
<b>Perfluorooctanoic acid (PFOA)</b>	Nonexistent	0.007 ppt	EWG-recommended health guideline	Cancer; harm to the immune system; hormone disruption; harm to fetal growth and child development; harm to the liver
<b>Picloram</b>	500 ppb	166 ppb	California public health goal	Harm to the liver; harm to the kidney; change to the reproductive system
<b>Polychlorinated biphenyls (PCBs)</b>	0.5 ppb	0.09 ppb	California public health goal	Breast cancer; prostate cancer; harm to the brain and nervous system; hormone disruption; harm to the immune system
<b>Radium-226</b>	5 pCi/L for combined radium-226 and radium-228	0.05 pCi/L	California public health goal	Cancer
<b>Radium-228</b>	5 pCi/L for combined radium-226 and radium-228	0.019 pCi/L	California public health goal	Cancer



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<b>Selenium</b>	50 ppb	30 ppb	California public health goal	Hormone disruption; harm to child development; harm to the brain and nervous system; skin damage
<b>Simazine</b>	4 ppb	0.1 ppb	EWG-recommended health guideline	Harm to the developing fetus; hormone disruption; harm to the reproductive system; changes in the nervous system; changes in brain and behavior; cancer
<b>Strontium</b>	Nonexistent	1.5 ppm	Health benchmark defined by the Environmental Protection Agency for testing under the Unregulated Contaminant Monitoring Rule program	Harm to bones
<b>Strontium-90</b>	Nonexistent	0.35 pCi/L	California public health goal	Cancer; harm to bones
<b>Styrene</b>	100 ppb	0.5 ppb	California public health goal	Cancer; harm to the liver; harm to the brain and nervous system
<b>Tetrachloroethylene (perchloroethylene)</b>	5 ppb	0.06 ppb	California public health goal	Lung cancer; breast cancer; colon cancer; harm to the kidney; harm to the liver; harm to the central nervous system
<b>Thallium</b>	2 ppb	0.1 ppb	California public health goal	Hair loss; harm to the liver; harm to the central nervous system; harm to the brain and nervous system; harm to the male reproductive system
<b>Toluene</b>	1 ppm	0.15 ppm	California public health goal	Harm to the brain and nervous system; harm to the liver; harm to the immune system; harm to the reproductive system; harm to fetal growth and development
<b>Total trihalomethanes (TTHMs)</b>	80 ppb	0.15 ppb	EWG-recommended health guideline	Bladder cancer; skin cancer; harm to fetal growth and development

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<b>Toxaphene</b>	3 ppb	0.03 ppb	California public health goal	Cancer; harm to the brain and nervous system; harm to the liver; harm to the kidney; hormone disruption
<b>Tribromoacetic acid</b>	Nonexistent	0.04 ppb	EWG-recommended health guideline	Change to fetal growth and development
<b>Trichloroacetic acid</b>	Nonexistent	0.1 ppb	EWG-recommended health guideline	Cancer; harm to reproduction and child development
<b>Trichloroethylene</b>	5 ppb	0.4 ppb	A risk assessment advisory level defined by the Minnesota Department of Health	Cancer; change to fetal growth and development; harm to the liver; harm to the kidney
<b>Trichlorofluoromethane</b>	Nonexistent	1.3 ppm	California public health goal	Harm to the liver; change to the central nervous system; harm to the heart and blood vessels
<b>Trichlorotrifluoroethane</b>	Nonexistent	4 ppm	California public health goal	Harm to the liver; change to the central nervous system; harm to the heart and blood vessels
<b>Tritium</b>	Nonexistent	400 pCi/L	California public health goal	Cancer
<b>Uranium</b>	30 ppb*	0.43 pCi/L	California public health goal	Cancer; harm to the kidney
<b>Vanadium</b>	Nonexistent	21 ppb	Health benchmark defined by the Environmental Protection Agency for testing under the Unregulated Contaminant Monitoring Rule program	Change in blood chemistry; harm to reproduction and child development
<b>Vinyl chloride</b>	2 ppb	0.05 ppb	California public health goal	Liver cancer; harm to the liver; change to the central nervous system
<b>Xylenes (total)</b>	10 ppm	1.8 ppm	California public health goal	Harm to the brain and nervous system; change to the central nervous system; change to fetal growth and development

\* The legal limit for uranium is 30 micrograms per liter (corresponding to parts per billion or ppb), but the human health guideline for uranium is based on the overall radioactivity of the substance. Using an EPA conversion factor described in the 2002 EPA Implementation Guidance for Radionuclides, uranium test results can be converted from parts per billion to picocuries per liter. A measurement of 30 ppb is calculated to have a radioactivity level of 20 pCi/L.