

South Dakota State University  
**Open PRAIRIE: Open Public Research Access Institutional  
Repository and Information Exchange**

---

Extension Extra

SDSU Extension

---

4-1-2002

# Drinking Water Standards- Health Advisories Levels

Russ Derickson  
*South Dakota State University*

Follow this and additional works at: [http://openprairie.sdstate.edu/extension\\_extra](http://openprairie.sdstate.edu/extension_extra)

---

## Recommended Citation

Derickson, Russ, "Drinking Water Standards- Health Advisories Levels" (2002). *Extension Extra* . Paper 24.  
[http://openprairie.sdstate.edu/extension\\_extra/24](http://openprairie.sdstate.edu/extension_extra/24)

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact [michael.biondo@sdstate.edu](mailto:michael.biondo@sdstate.edu).



# Extension Extra

ExEx 1027  
Updated April 2002  
Agriculture and  
Biosystems  
Engineering

COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SOUTH DAKOTA STATE UNIVERSITY / USDA

## Drinking Water Standards Health Advisories Levels

*Russ Derickson, Extension water and natural resources,  
SDSU Agricultural Engineering Department*

Testing water is the first step in tackling domestic water quality problems. Water test reports will confirm your suspicion of quality problems. With results in hand you can determine the extent of the problem and the best alternative to solve it. A water test gives a quantifiable level of a contaminant at the time the sample was taken. These values usually are reported in mg/L (milligrams per liter).

**To determine if problems exist, compare your water test results to established EPA standards.** The EPA has established standards to limit concentrations of water contaminants to acceptable health levels. Consuming water with contaminants above drinking water standards may cause adverse health effects to individuals over a lifetime.

**EPA's Primary Drinking Water Standards quantify levels of contaminants that affect health.** These standards or Maximum Contaminant Levels (MCL) are enforced by the EPA on public drinking water systems but are only a guide for private water systems. Private water systems as defined by the EPA, serve less than 25 people and have less than 15 service connections; all other systems are considered public water systems.

Owners of private water systems are responsible for monitoring the water quality of their water themselves and should use the EPA's Primary Drinking Water Standards as a guideline for the water's safety.

**Health Advisories Levels (HAL) are guidelines issued by the EPA** to assist state and local officials in responding to drinking water contamination. They contain information on health risks and treatment technologies and specific levels of chemical concentrations in water that are acceptable for drinking. In preparing Health Advisories, the EPA reviews available human and experimental animal studies to evaluate potential human health effects. Health advisories are updated with new information as they become available. **Health Advisories Levels are not enforceable levels but only guidelines.**

Milligrams per liter and parts per million are considered equivalents. Mg/Ls are based on weight-ratios and ppm are based on volume measurements. See the following additional conversion factors:

1 mg/L (milligram per liter) = 1 ppm (part per million)  
1 ug/L (microgram per liter) = 1 ppb (part per billion)  
1 ng/L (nanogram per liter) = 1 ppt (part per trillion)  
1 mg/L = 1000 ug/L = 1,000,000 ng/L

### Examples

Baygon 0.003 mg/L (0.003 ppm)  
= 3.0 ug/L (3 ppb) = 3,000 ng/L (3,000 ppt)

Carbaryl 0.7 mg/L (0.7 ppm)  
= 700 ug/L (700 ppb) = 700,000 ng/L (700,000 ppt)

To convert HALs with many zeros after the decimal point into a more understandable form, move the decimal point to the right in increments of three. If you start with parts per million and move the decimal point 3 places to the right, the HAL would now be in parts per billion. If moved another 3 places to the right, it would be in parts per trillion.

### Additional references

For more information on drinking water standards and options for treatment, refer to the following South Dakota Cooperative Extension Service publications:

ExEx 1025 Primary Drinking Water Standards  
ExEx 1026 Secondary Drinking Water Standards  
ExEx 1028 Household Water Treatment Equipment  
FS877P Identifying and Correcting Water Problems  
FS877A Activated Carbon Filtration  
FS877C Chlorination  
FS877D Distillation  
FS877IM Iron and Manganese Removal  
ES877RO Reverse Osmosis

# Health Advisories

(Current as of August 1994)

Contaminant	Trade name	HAL	Unit	Health effect	Sources
Acifluorfen	Blazer Tackle RH-6201	0.01	mg/L	heart, liver, kidneys, blood changes, possible carcinogen, delayed fetal development	soybean and peanut herbicide
Ametryn	Ametrex Gesapex	0.06	mg/L	liver, possible carcinogen	herbicide for pineapples, sugarcane, bananas, plantains, corn, potatoes
Ammonium sulfamate		2.0	mg/L		
Baygon	Propoxur Unden Blattanex	0.003	mg/L	organs, inhibits cholinesterase, possible carcinogen	insecticide to control cockroaches, flies, and mosquitoes
Bentazon	Basagran	0.02	mg/L	weight loss, inflamed prostate gland	broadleaf herbicide in soybeans, rice, corn, peanuts, beans, peas, and mint
bis-2-Chloroisopropyl ether		0.3	mg/L		
Bromacil	Borea Hyvar Uragan	0.09	mg/L	testes,liver,thyroid, possible carcinogen	perennial grass herbicide, general weed & brush control in non-crop areas
Bromochloromethane		0.09	mg/L		
Bromomethane		0.01	mg/L		
Butylate	Sutan R-1910	0.35	mg/L	testes, liver, kidneys, delayed fetal development	grass herbicide in corn
Carbaryl	Sevin	0.7	mg/L	liver, kidneys, reduced fertility, inhibits cholinesteras	insecticide in many crops, forests, lawns, ornamentals, shade trees, rangeland
Carboxin	Vitavax	0.7	mg/L	kidneys, liver, reduced growth in offspring	seed protectant, wood preservative, fungicide
Chloramben	Amiben	0.1	mg/L	liver, delayed fetal growth, high infant mortality	herbicide in corn, beans, peanuts, asparagus, soybeans, squash, sunflowers, sweet potatoes
Chlrothalonil	Bravo Daconil	0.002	mg/L	kidney, excessive weight loss, possible carcinogen	fungicide in beans, carrots, celery, conifers, peanuts, peanuts, ornaments
Cyanazine	Bladex	0.01	mg/L	liver, change in organ weights, blood changes birth defects, convulsions	corn herbicide for annual grasses and broadleaf weeds
Diazinon	Sprectracide Basudin AG-500	0.0006	mg/L	inhibits cholinesterase	seed treatment, fly control, nematocide in turf, soil insecticide in fruits,vegetables tobacco, forage, pasture and grass land
Dicambia	Banvel	0.2	mg/L	liver, decreased body weight	broadleaf weeds in corn, sorghum, grains, asparagus, grass seed crops
Dichlorofluoromethane		1.0	mg/L		
1,3-Dichloropropane	Telone DCP	0.0002	mg/L	bladder, kidneys, possible carcinogen	soil fumigant and nematocide in sandy soils
Dieldrin	Hoed Dieldrex	0.000002	mg/L	bladder, liver, convulsions, weight loss, possible carcinogen	insecticide for termites and soil insects
Diisopropyl methylphosonate		0.6	mg/L		
Dimethrin		2.0	mg/L		
Dimethyl methylphosonate		0.1	mg/L		
1,3-Dinitrobenzene		0.001	mg/L		
2,4-Dinitroluene		0.02	mg/L		
2,6-Dinitroluene		0.008	mg/L		
p-Dioxane		0.7	mg/L		

Contaminant	Trade name	HAL	Unit	Health effect	Sources
Diphenamid	Dymid Enide	0.2	mg/L	liver, thyroid	herbicide in tomatoes, peanuts, alfalfa, soybeans, cotton,
Diphenylamine		0.2	mg/L		
Disulfoton	Disyton Dithiodemeton	0.0003	mg/L	change in organ weights, eyes, genetic mutation, inhibits cholinesterase	seed applied insecticide and miticide
1,4-Dithiane		0.08	mg/L		
Diuron	Karmex	0.01	mg/L	spleen, abnormal fetal development, methemoglobinemia	broadleaf control in sugarcane, pineapple, alfalfa, grapes, cotton, peppermint
Ethylene glycol		7.0	mg/L		
Ethylene thiurea ETU (byproduct of EBDC)		0.0002	mg/L	thyroid, genetic mutations, birth defects, possible carcinogen	breakdown product of EBDC a fungicide in roses, flowers, potatoes, tomatoes, lettuce, apples, pears and hops
Fenamiphos	Nemacur	0.005	mg/L	changed organ weights, reduced fetal weight, abnormal bone development, inhibits cholinesterase	nematocide in cotton, peanuts, vegetables, fruit, citrus, pineapple, tobacco, turf, ornamentals
Flumeturon	Cotoron C-2059	0.09	mg/L	liver, kidney, spleen	herbicide for annual grasses and broadleaf weeds
Fluorotrichloromethane		2.0	mg/L		
Fonfos		0.01	mg/L		
Hexachloromethane		0.001	mg/L		
n-Hexane		0.02			
Hexazinone	Velpar	0.2	mg/L	liver blood, reduced body weight in offspring, chromosomes	herbicide by utilities, pipelines, drainage ditches and in conifers, sugar, and alfalfa cropland
HMX		0.4	mg/L		
Isophorone		0.1	mg/L		
Malathion		0.2	mg/L		
Maleic hydrazide		4.0	mg/L		
MCPA		0.01	mg/L		
Methomyl	Nudrin Lannate	0.2	mg/L	kidney, spleen, liver, bone marrow	insecticide for agricultural crops and ornamentals
Methy ethyl ketone		-			
Methyl parathion		0.002	mg/L		
Metolachlor	Dual Promextra	0.1	mg/L	methemoglobinemia	herbicide in woody ornamentals, corn, sunflowers, soybeans, peanuts, pod crops cotton
Metribuzin	Lexone Sencor	0.2	mg/L	kidney	ag herbicide for grass and broadleaf weeds
Napthalene		0.02	mg/L		
Nitrocellulose (non-toxic)		-			
Nitroguanidine		0.7	mg/L		
p-Nitrophenol		0.06	mg/L		
Paraquat		0.03	mg/L		
Prometon	Pramitol	0.1	mg/L	abnormal growth	herbicide for perennial broadleaves and grasses
Pronamide	Kerb	0.05	mg/L	liver, possible carcinogen	herbicide for lettuce, legumes, turf, woody ornamentals, nursery stock, christmas trees
Propachlor	Bexton Ramrod	0.09	mg/L	liver, kidneys, blood	grass and broadleaf herbicide
Propazine	Gesomil Miloguard Primatol P	0.01	mg/L	decreased fetal weight gain, delayed fetal bone development, possible carcinogen	grass and broadleaf herbicide for sorghum

Contaminant	Trade name	HAL	Unit	Health effect	Sources
Propham	Beet-Kleen ICP	0.1	mg/L	delayed fetal development, inhibits cholinesterase	herbicide in alfalfa, lettuce, spinach, sugar beets, lentils, peas
Propyzamide		-			
RDX		0.002	mg/L		
2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)	2,4,5-T Fence Rider	0.07	mg/L	liver, kidney, lungs, reduced fetal weight, birth defects	control woody plants at industrial sites, rangeland and weeds in rice (canceled)
Tebuthiuron	Graslan Spike	0.5	mg/L	excessive weight loss, pancreas	total herbicide in noncropland areas, rangeland control of brush and weeds
Terbacil	Sinbar	0.09	mg/L	liver, reduced fetal weight, abnormal fetal development	herbicide in sugarcane, alfalfa, pecans, certain fruits
Terbufos	Counter	0.0009	mg/L	eye, stomach, fetal development, inhibits cholinesterase	insecticide in corn, sugar beets, sorghum
1,1,1,2-Tetrachloroethane		-			
1,3,5-Trichlorobenzene		0.04	mg/L		
1,2,3-trichloropropane		0.04			
Trifluralin	Treflan	0.005	mg/L	liver, kidney, decreased fetal weight and size, increased miscarriages, possible carcinogen	herbicide in soybeans, cotton, vegetables, fruits, nut trees, shrubs, flowers
Trinitroglycerol		0.005	mg/L		
Trinitrotoluene	TNT	0.002	mg/L		

This publication and others can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page, which is at <http://agbiopubs.sdstate.edu/articles/ExEx1027.pdf>



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. SDSU is an Affirmative Action/Equal Opportunity Employer (Male/Female) and offers all benefits, services, and educational and employment opportunities without regard for ancestry, age, race, citizenship, color, creed, religion, gender, disability, national origin, sexual preference, or Vietnam Era veteran status.

ExEx 1027- pdf by CES. January 1995; updated April 2002.