Lumex Instruments
Insight into mysteries of Nature

USA Drinking Water Quality

Primary Drinking Water Regulations

Disinfection Byproducts

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Sources of Contaminant in Drinking Water
Bromate	zero	0.010	Increased risk of cancer	Byproduct of drinking water disinfection
Chlorite	0.8	1.0	Anemia; infants and young children: nervous system effects	Byproduct of drinking water disinfection
Haloacetic acids (HAA5)	n/a (6)	0,060 (7)	Increased risk of cancer	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs)	--> n/a (6)	--> 0,080 (7)	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection

Disinfectants

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Sources of Contaminant in Drinking Water
Chloramines (as Cl2)	MRDLG=4 (1)	MRDL=4.0 (1)	Eye/nose irritation; stomach discomfort, anemia	Water additive used to control microbes
Chlorine (as Cl2)	MRDLG=4 (1)	MRDL=4.0 (1)	Eye/nose irritation; stomach discomfort	Water additive used to control microbes
Chlorine dioxide (as ClO2)	MRDLG=0.8 (1)	MRDL=0.8 (1)	Anemia; infants and young children: nervous system effects	Water additive used to control microbes

Inorganic Chemicals

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)	Sources of Contaminant in Drinking Water
Antimony	0.006	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder

*) According to EPA Drinking Water Standards and Regulations http://water.epa.gov/drink/contaminants/index.cfm

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Inorganic Chemicals				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Arsenic	0	0.010 as of 01/23/06	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards, runoff from glass and electronicsproduction wastes
Asbestos (fiber > 10 micrometers)	7 million fibers per liter (MFL)	7 MFL	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits
Barium	2	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	0.004	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	0.005	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (total)	0.1	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits
Copper	1,3	TT (7); Action Level=1.3	Short term exposure: Gastrointestinal distress Long term exposure: Liver or kidney damage People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits
Cyanide (as free cyanide)	0.2	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	4.0	4.0	Bone disease (pain and tenderness of the bones); Children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Lead	zero	TT (7); Action Level=0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits
Mercury (inorganic)	0.002	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands

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Inorganic Chemicals				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Nitrate (measured as Nitrogen)	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Selenium	0.05	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Thallium	0.0005	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Organic Chemicals				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Acrylamide	zero	TT (8)	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment
Alachlor	zero	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops
Atrazine	0.003	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops
Benzene	zero	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills
Benzo(a)pyrene (PAHs)	zero	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines

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Organic Chemicals				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Carbofuran	0.04	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa
Carbon tetrachloride	zero	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities
Chlordane	zero	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide
Chlorobenzene	0.1	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories
2,4-D	0.07	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops
Dalapon	0.2	0.2	Minor kidney changes	Runoff from herbicide used on rights of way
1,2-Dibromo-3-chloropropane (DBCP)	zero	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
o-Dichlorobenzene	0.6	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories
p-Dichlorobenzene	0.075	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories
1,2-Dichloroethane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
1,1-Dichloroethylene	0.007	0.007	Liver problems	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	0.07	0.07	Liver problems	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene	0.1	0.1	Liver problems	Discharge from industrial chemical factories
Dichloromethane	zero	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories
1,2-Dichloropropane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
Di(2-ethylhexyl) adipate	0.4	0.4	Weight loss, liver problems, or possible reproductive difficulties.	Discharge from chemical factories
Di(2-ethylhexyl) phthalate	zero	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories
Dinoseb	0.007	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables

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Dioxin (2,3,7,8-TCDD)	zero	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories
Diquat	0.02	0.02	Cataracts	Runoff from herbicide use
Endothall	0.1	0.1	Stomach and intestinal problems	Runoff from herbicide use
Endrin	0.002	0.002	Liver problems	Residue of banned insecticide
Epichlorohydrin	zero	TT (8)	Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals
Ethylbenzene	0.7	0.7	Liver or kidneys problems	Discharge from petroleum refineries
Ethylene dibromide	zero	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries
Glyphosate	0.7	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use
Heptachlor	zero	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide
Heptachlor epoxide	zero	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor
Hexachlorobenzene	zero	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclopentadiene	0.05	0.05	Kidney or stomach problems	Discharge from chemical factories
Lindane	0.0002	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	0.04	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl (Vydate)	0.2	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes
Polychlorinated biphenyls (PCBs)	zero	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	zero	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood preserving factories

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Organic Chemicals				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Picloram	0.5	0.5	Liver problems	Herbicide runoff
Simazine	0.004	0.004	Problems with blood	Herbicide runoff
Styrene	0.1	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners
Toluene	1	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories
Toxaphene	zero	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle
2,4,5-TP (Silvex)	0.05	0.05	Liver problems	Residue of banned herbicide
1,2,4-Trichlorobenzene	0.07	0.07	Changes in adrenal glands	Discharge from textile finishing factories
1,1,1-Trichloroethane	0.20	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories
1,1,2-Trichloroethane	0.003	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories
Trichloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories
Vinyl chloride	zero	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories
Xylenes (total)	10	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories

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Radionuclides				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Alpha particles	none (7) ---------- zero	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Beta particles and photon emitters	none (7) ---------- zero	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Radium 226 and Radium 228 (combined)	none (7) ---------- zero	5 pCi/L	Increased risk of cancer	Erosion of natural deposits
Uranium	zero	30 ug/L as of 12/08/03	Increased risk of cancer, kidney toxicity	Erosion of natural deposits

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Microorganisms				
Contaminant	**MCLG[1] (mg/L)[2]**	**MCL or TT[1] (mg/L)[2]**	**Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)**	**Sources of Contaminant in Drinking Water**
Cryptosporidium	zero	TT (3)	Gastrointestinal illness (such as diarrhea, vomiting, and cramps)	Human and animal fecal waste
Giardia lamblia	zero	TT (3)	Gastrointestinal illness (such as diarrhea, vomiting, and cramps)	Human and animal fecal waste
Heterotrophic plate count (HPC)	n/a	TT (3)	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment
Legionella	zero	TT (3)	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems
Total Coliforms (including fecal coliform and E. Coli)	zero	5.0% (4)	Not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present5	Coliforms are naturally present in the environment; as well as feces; fecal coliforms and *E. coli* only come from human and animal fecal waste.
Turbidity	n/a	TT (3)	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (such as whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff
Viruses (enteric)	zero	TT (3)	Gastrointestinal illness (such as diarrhea, vomiting, and cramps)	Human and animal fecal waste

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[(1)] **Definitions:**

- Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.)
- Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.
- Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- [(2)] Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (PPM).
  [(3)] EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to
  - (1) disinfect their water, and
  - (2) filter their water or
  - meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:
    -
      - *Cryptosporidium*: Unfiltered systems are required to include *Cryptosporidium* in their existing watershed control provisions
      - *Giardia lamblia*: 99.9% removal/inactivation.
      - Viruses: 99.99% removal/inactivation.
      - *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, according to the treatment techniques in the Surface Water Treatment Rule, *Legionella* will also be controlled.
      - Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 Nephelometric Turbidity Unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTUs in at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTUs.
      - Heterotrophic Plate Count (HPC): No more than 500 bacterial colonies per milliliter.
      - Long Term 1 Enhanced Surface Water Treatment: Surface water systems or groundwater under the direct influence (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (such as turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
      - Long Term 2 Enhanced Surface Water Treatment Rule: This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storage facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts.
      - Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

  [(4)] No more than 5.0% samples total coliform-positive (TC-positive) in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli* if two consecutive TC-positive samples, and one is also positive for *E.coli* fecal coliforms, system has an acute MCL violation.
  [(5)] Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.
  [(6)] Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:
  - Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L): chloroform (0.07 mg/L.
  - Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs.

  [(7)] Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.
  [(8)] Each water system must certify, in writing, to the state (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows:
  - Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)
  - Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

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Secondary Drinking Water Regulations

EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards for 15 contaminants. EPA does not enforce these "secondary maximum contaminant levels" or "SMCLs."

List of National Secondary Drinking Water Regulations

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

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Contaminant Candidate List (CCL)

Draft CCL 4 Chemical Contaminants

Substance Name	CASRN[1]	Use
1,1-Dichloroethane	75-34-3	It is an industrial solvent and an intermediate in the synthesis of other compounds.
1,1,1,2-Tetrachloroethane	630-20-6	It is an industrial solvent and used in the synthesis of other chlorinated compounds.
1,2,3-Trichloropropane	96-18-4	It is an industrial solvent, cleaning and degreasing agent as well as an intermediate in the synthesis of the other compounds.
1,3-Butadiene	106-99-0	It is used in the production of rubber and plastics.
1,4-Dioxane	123-91-1	It is used as a solvent or solvent stabilizer in the manufacturing and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos.
17alpha-estradiol	57-91-0	It is an estrogenic hormone found in some pharmaceuticals.
1-Butanol	71-36-3	It is a solvent and used in production of other chemicals. compounds. It is present in a number of commercial products such as perfumes.
2-Methoxyethanol	109-86-4	It is used in a number of consumer products, such as synthetic cosmetics, perfumes, fragrances, hair preparations, and skin lotions.
2-Propen-1-ol	107-18-6	It is used in the production of other chemicals.
3-Hydroxycarbofuran	16655-82-6	It is a pesticide degradate, the parent, carbofuran, is used as an insecticide.
4,4'-Methylenedianiline	101-77-9	It is used in the production of polyurethanes foams, glues, rubber and spandex fiber.
Acephate	30560-19-1	It is an insecticide.
Acetaldehyde	75-07-0	It is a disinfection byproduct from ozonation; it is used in the production of other chemicals.
Acetamide	60-35-5	It is used as a solvent and plasticizer.
Acetochlor	34256-82-1	It is an herbicide for weed control on agricultural crops.
Acetochlor ethanesulfonic acid (ESA)	187022-11-3	Acetochlor ESA is an environmental degradate of acetochlor.
Acetochlor oxanilic acid (OA)	184992-44-4	Acetochlor OA is an environmental degradate of acetochlor.
Acrolein	107-02-8	It is used as an aquatic herbicide, rodenticide and industrial chemical.
Alachlor ethanesulfonic acid (ESA)	142363-53-9	Alachlor ESA is an environmental degradate of the pesticide alachlor (an herbicide for weed control on agricultural crops).
Alachlor oxanilic acid (OA)	171262-17-2	Alachlor OA is an environmental degradate of alachlor.
alpha-Hexachlorocyclohexane	319-84-6	It is a component of benzene hexachloride (BHC) and was formerly used as an insecticide.
Aniline	62-53-3	It is used as an industrial chemical, as a solvent, in the synthesis of explosives, rubber products and in isocyanates.
Bensulide	741-58-2	It is an herbicide.

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Substance Name	CASRN[1]	Use
Benzyl chloride	100-44-7	It is used in the production of other substances, such as plastics, dyes, lubricants, gasoline and pharmaceuticals.
Butylated hydroxyanisole	25013-16-5	It is used as a food additive (antioxidant).
Captan	133-06-2	It is a fungicide.
Chlorate	14866-68-3	Chlorate compounds are used in agriculture as defoliants or desiccants and may occur in drinking water because of use of disinfectants such as chlorine dioxide and hypochlorites.
Chloromethane (Methyl chloride)	74-87-3	It is used as a foaming agent and in the production of other substances.
Clethodim	110429-62-4	It is an herbicide.
Cobalt	7440-48-4	It is a naturally-occurring element and was formerly used as cobaltous chloride in medicines and as a germicide. It is a part of the vitamin B12 molecule
Cumene hydroperoxide	80-15-9	It is used as a catalyst is used in the production of other substances.
Cyanotoxins	Not applicable.	Toxins naturally produced and released by cyanobacteria ("blue-green algae"). Various studies suggest three cyanotoxins for consideration: Anatoxin-a, Microcystin-LR, and Cylindrospermopsin
Dicrotophos	141-66-2	It is an insecticide.
Dimethipin	55290-64-7	It is an herbicide and plant growth regulator.
Disulfoton	298-04-4	It is an insecticide.
Diuron	330-54-1	It is an herbicide.
Equilenin	517-09-9	It is an estrogenic hormone used in hormone replacement therapy.
Equilin	474-86-2	It is an estrogenic hormone and is used in hormone replacement therapy.
Erythromycin	114-07-8	It is used an antibiotic.
Estradiol (17-beta estradiol)	50-28-2	It is an isomer of estradiol found in some pharmaceuticals.
Estriol	50-27-1	It is a weak estrogenic hormone used in veterinary pharmaceuticals.
Estrone	53-16-7	It is a precursor of estradiol used in veterinary and human pharmaceuticals.
Ethinyl estradiol (17-alpha ethynyl estradiol)	57-63-6	It is an estrogenic hormone and is used in veterinary and human oral contraceptives.
Ethoprop	13194-48-4	It is an insecticide.
Ethylene glycol	107-21-1	It is used as antifreeze, in textile manufacturing and is a cancelled pesticide.

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Substance Name	CASRN[1]	Use
Ethylene oxide	75-21-8	It is a fungicidal and insecticidal fumigant.
Ethylene thiourea	96-45-7	It is used in the production of other substances, such as for vulcanizing polychloroprene (neoprene) and polyacrylate rubbers and is a metabolite of some fungicides.
Fenamiphos	22224-92-6	It is an insecticide.
Formaldehyde	50-00-0	It is an ozoneation disinfection byproduct, can occur naturally and has been used as a fungicide.
Germanium	7440-56-4	It is a naturally-occurring element and is commonly found as germanium dioxide in phosphors, transistors and diodes, and in electroplating. In some cases it has been sold as a dietary supplement.
HCFC-22	75-45-6	It is used as a refrigerant, as a low-temperature solvent, and in fluorocarbon resins, especially in tetrafluoroethylene polymers.
Halon 1011 (bromochloromethane)	74-97-5	It is used as a fire-extinguishing fluid and to suppress explosions, as well as a solvent in the manufacturing of some pesticides. May also occur as a disinfection by-product in drinking water.
Hexane	110-54-3	It is a component of gasoline and used as a solvent.
Hydrazine	302-01-2	It is used as an ingredient in the production of other substances, such as rocket propellants. It is also used in the production of plastics.
Manganese	7439-96-5	It is a naturally-occurring element used in a variety of applications including use in steel production to improve hardness, stiffness and strength. It is an essential nutrient found in vitamin/mineral supplement and in fortified foods.
Mestranol	72-33-3	It is a precursor to ethinylestradiol used in veterinary and human pharmaceuticals.
Methamidophos	10265-92-6	It is an insecticide.
Methanol	67-56-1	It is used as an industrial solvent, a gasoline additive and as an anti-freeze ingredient.
Methyl bromide (bromomethane)	74-83-9	It has been used as a fumigant and fungicide.
Methyl tert-butyl ether (MTBE)	1634-04-4	It is used as an octane booster in gasoline, in the manufacturing of isobutene and as an extraction solvent.
Metolachlor	51218-45-2	It is an herbicide for weed control on agricultural crops.
Metolachlor ethanesulfonic acid (ESA)	171118-09-5	Metolachlor ESA is an environmental degradate of metolachlor.
Metolachlor oxanilic acid (OA)	152019-73-3	Metolachlor OA is an environmental degradate of metolachlor.
Molinate	2212-67-1	It is an herbicide.
Molybdenum	7439-98-7	It is a naturally-occurring element and is commonly found as molybdenum trioxide. It is used as a steel alloy. It is an essential dietary nutrient found in foods and nutritional supplements.
Nitrobenzene	98-95-3	It is used in the production of aniline, and also as a solvent in the manufacturing of paints, shoe polishes, floor polishes, metal polishes, explosives, dyes, pesticides and drugs (such as acetaminophen).,
Nitroglycerin	55-63-0	It is used in the production of explosives, and in rocket propellants. It is also a pharmaceutical for the treatment of angina.

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Substance Name	CASRN[1]	Use
N-Methyl-2-pyrrolidone	872-50-4	It is a solvent in the chemical industry, and is used in the formulation of pharmaceuticals for oral and dermal delivery.
N-nitrosodiethylamine (NDEA)	55-18-5	It is a nitrosamine used as an additive in gasoline and in lubricants, as an antioxidant and as a stabilizer in plastics. It is formed in cured foods and during high temperature cooking of meats and fish, and may be a disinfection byproduct.
N-nitrosodimethylamine (NDMA)	62-75-9	It was formerly used in the production of rocket fuels, anti-oxidants and softeners for copolymers. It is formed in cured foods and during high temperature cooking. It may be a leachate from rubber gaskets and fittings and may form as a disinfection byproduct.
N-nitroso-di-n-propylamine (NDPA)	621-64-7	It is formed in cured foods and during high temperature cooking of meats and fish and may be a disinfection byproduct. It is a contaminant in dinitrofluralin herbicides.
N-Nitrosodiphenylamine	86-30-6	It is used in the vulcanization of rubber and as an inhibitor of polymerization in the production of polystyrene. It may be a disinfection byproduct.
N-nitrosopyrrolidine (NPYR)	930-55-2	It is used in rubber production. It is formed in cured foods and during high temperature cooking of meats and fish and may be a disinfection byproduct.
Nonylphenol	25154-52-3	It is used in the preparation of lubricating oil additives, resins, plasticizers and antioxidants for plastic and rubber. It is an environmental degradate from nonlyphenol ethoxylate surfactants found in detergents and used in the treatment of textiles.
Norethindrone (19-Norethisterone)	68-22-4	Norethindrone is a synthetic hormone used in oral contraceptives and for hormone replacement therapy.
n-Propylbenzene	103-65-1	It is a constituent of asphalt and naptha and used in the manufacture of methyl styrene. It is a solvent for printing and dying of textiles.
o-Toluidine	95-53-4	It is used in the production of dyes, rubber, pharmaceuticals and pesticides.
Oxirane, methyl	75-56-9	It is an industrial chemical used in the production of other substances. It is a registered pesticide.
Oxydemeton-methyl	301-12-2	It is an insecticide.
Oxyfluorfen	42874-03-3	It is an herbicide.
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFOS is used in firefighting foams. It has various surfactant uses and it was used to provide soil, water and oil resistance for upholstered furniture and carpets. Many of these uses are being phased out by U.S. manufacturers.
Perfluorooctanoic acid (PFOA)	335-67-1	PFOA is used in the manufacturing of coatings which provide non-stick surfaces on cookware and in the manufacture of waterproof, breathable membranes for clothing.
Permethrin	52645-53-1	It is an insecticide.
Profenofos	41198-08-7	It is an insecticide and an acaricide.
Quinoline	91-22-5	It is a component of coal tars and used in the production of other substances, and as a pharmaceutical (anti-malarial).
RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine)	121-82-4	It is an explosive.
sec-Butylbenzene	135-98-8	It is used as a solvent for coatings in organic synthesis, as a plasticizer and in surfactants.
Tebuconazole	107534-96-3	It is a fungicide.

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Substance Name	CASRN[1]	Use
Tebufenozide	112410-23-8	It is insecticide.
Tellurium	13494-80-9	It is a naturally-occurring element and is commonly used as sodium tellurite in bacteriology and medicine.
Thiodicarb	59669-26-0	It is an insecticide.
Thiophanate-methyl	23564-05-8	It is a fungicide.
Toluene diisocyanate	26471-62-5	It is used in the manufacturing of plastics.
Tribufos	78-48-8	It is an insecticide and used as a cotton defoliant.
Triethylamine	121-44-8	It is used in the production of other substances, as a stabilizer in herbicides and pesticides, in consumer products, in photographic chemicals and in carpet cleaners.
Triphenyltin hydroxide (TPTH)	76-87-9	It is a pesticide.
Urethane	51-79-6	It is a paint and coating ingredient (polyurethanes).
Vanadium	7440-62-2	It is a naturally-occurring element. Vanadium pentoxide is a catalyst for the production of other substances catalyst. It is sometimes an ingredient in mineral supplements but is not classified as an essential nutrient
Vinclozolin	50471-44-8	It is a fungicide.
Ziram	137-30-4	It is a fungicide.

Notes:

1 Chemical Abstract Service Registration Number (CASRN#) - Chemical abstract service registry numbers are used in reference works, databases, and regulatory compliance documents by many organizations around the world to identify substances with a standardized name.

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