



eSpring™

eSPRING™

CONTAMINANT REDUCTION LIST

(INCLUDING HEALTH EFFECTS & SOURCES OF CONTAMINATION)



eSpring™



Aesthetic Substance	% Reduced
Particulates – Class I	>95
Taste, Odour and Chlorine Class I	>95
Chloramine	>95

Contaminant	% Reduced	Potential Health Effects from Ingestion of Water	Sources of Contaminant in Drinking Water
Acenaphthene	>99.7	Headache, fatigue, nausea; development of skin allergy; liver and kidney damage	Runoff/leaching from use as insecticide/fungicide
Acenaphthylene	>99.7	See Above	Dehydration of acenaphthene
Alachlor	>95	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops
Aldicarb	99.8	Central nervous system and neurological problems	Runoff/leaching from soil treatment with insecticide
Aldrin	97.4	Increased risk of cancer	Runoff/leaching from soil treatment with insecticide
Alpha – BHC See Lindane	>99.6	Liver and kidney damage; increased risk of cancer	Runoff/leaching from insecticide
Alpha – Endosulfan	97.1	Endocrine disruption	Runoff from insecticide used on food crops
Anthracene	>99.6	Skin damage, gastrointestinal tract; hematological and lymphoid systems problems	Release from dye manufacturing or wood preserving facilities; runoff from insecticide use
Asbestos	>99	Skin damage; circulatory system problems; increased risk of benign intestinal polyps, lung disease and cancer	Decay of asbestos cement in water mains; runoff from glass and electronics plant wastes; wear/breakdown of asbestos-containing materials; erosion of natural deposits

Atenolol	99%	Potential endocrine disrupting compound (EDC). Group of drugs called beta blockers that works by slowing down the heart and reducing its workload	Drinking water contaminated by pharmaceuticals is an emerging area of research. The levels that are being reported are in the parts per trillion (ppt) ranges but are still alarming to many people even though there is no reported health effects associated to any of the levels of pharmaceuticals reported.
Atrazine	>90	Cardiovascular system problems; reproductive difficulties; increased risk of cancer	Runoff from herbicide used on row crops; leaching from wastewater at manufacturing sites
Benzene	>95	Anemia; decreased in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills
Benzidine	>99.6	Increased risk of urinary bladder and other cancers	Leaching from waste sites; breakdown of benzidine-based dyes (breakdown of 1, 2 diphenylhydrazine)
Benzo[k]fluoranthene	98.1	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter, refuse
Benzo[a]anthracene	>99.3	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter, refuse
Benzo[a]pyrene	92.5	Reproductive difficulties; skin changes; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines
Benzo[b]fluoranthene	98.7	Increased risk of cancer	Release from dye manufacturing or wood preserving facilities; product of incomplete combustion of fossil fuel, organic matter, refuse

Benzo[g,h,i]-perylene	91.0	Possible skin, liver, and related tissue problems	Product of incomplete combustion of fossil fuel, organic matter, refuse
Beta-BHC	>99.6	Liver and kidney problems; increased risk of cancer	Runoff/leaching from insecticide
Beta-Endosulfan	97.5	Endocrine disruption	Runoff from insecticide used on food crops
Bis (2-Chloroethoxy) methane	>99.3	Skin and eye irritations	Discharge from rubber manufacturing plants
Bis (2-chloroethyl) ether (BCEE)	>99.0	Irritation and problems with skin, eyes, throat and lungs; increased risk of cancer	Discharge from textile factories, pesticide manufacturing and industrial chemical factories
Bis (2-chloroisopropyl) ether	>98.3	Increased risk of cancer	Discharge from dye, pharmaceutical and industrial chemical factories
Bis(2-ethyl-hexyl) phthalate	99.0	Developmental, liver and gastrointestinal problems; increased risk of cancer	Discharge during production of PVC and vinyl chloride resins
Bisphenol A (BPA)	99.1		A chemical compound used as a plasticiser
Bromochloroacetonitrile	>98.2	Suspected carcinogen	By-product of drinking water disinfection
Bromodichloromethane – see Trihalomethanes (TTHM's)			
Bromoform – see Trihalomethanes (TTHM's)			
4-Bromophenyl phenyl ether	>99.1		Leaching from waste sites
Butyl benzyl phthalate	>99.4	Reproductive and developmental problems; increased risk of cancer	Release from PVC manufacturing facilities; leaching from waste sites

Carbamazepine	>98.3		An anti-convulsant and mood-stabilising drug
Carbaryl	>98.3	Cholinesterase inhibition causing headaches, memory loss, muscle weakness and cramps; liver and kidney problems	Leaching from soil treated with insecticide
Carbofuran	>95	Problems with blood or nervous system; reproductive difficulties	Leaching from soil fumigant used on rice and alfalfa
Carbon tetrachloride	>95	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities
Chlordane	>95	Liver or nervous system problems; increased risk of cancer	Residue from banned termiticide
Chlorobenzene	>95	Liver or kidney problems	Discharge from chemical and agricultural factories
Chlorodibromomethane – see Trihalomethanes (TTHM's)			
2-chloroethyl vinyl ether	>99.9		Release during manufacture of pharmaceuticals
Chloroform – see Trihalomethanes (TTHM's) or VOC's	>95	Suspected carcinogen	
4-Chloro-3-methylphenol	>99.1	Lung and skin problems	By-product of water chlorination treatment; discharge from waste waters at manufacturing facilities
2-chloronaphthalene	94	Used in solvent, wood preservatives, immersion oil for testing refractive index and as additives in cable insulation, engine oil, electroplating compounds and capacitors. They are used in producing dyes.	Toxic Pollutants

2-Chlorophenol	>98.1	Reproductive and developmental problems; liver and kidney damage; increased risk of cancer	Leaching from treated wood; release from manufacturing facilities
4-Chlorophenyl phenyl ether	>99.1		
Chloropicrin	>99.2	Toxicity to humans, including carcinogenicity, reproductive and developmental toxicity, neurotoxicity and acute toxicity	Runoff from use as pesticide and by-product of drinking water disinfection
Chlorpyrifos	>99.9	Cholinesterase inhibition causing nausea, dizziness, and confusion; nervous system problems	Runoff from home insecticide use on cockroaches, fleas and termites or from farm use to control ticks on cattle and crop pests
Chrysene	>97.8	Increased risk of cancer	Pollution of dust particles formed when garbage, gasoline, or animal and plant materials are burned
cis-1, 2-Dichloroethylene	>99	Kidney and liver damage; nervous and hematological system problems	Discharge from industrial chemical factories
cis-1, 3-Dichloropropylene	>99	Bladder and kidney damage	Leaching from soil treated with nematocide; leaching from hazardous waste sites and production facilities
Cysts	>99.95%	Gastroenteric diseases such as cryptosporidiosis	Human and fecal animal waste
2-4-D	>95	Kidney, liver and hematological system problems	Runoff from herbicide used on row crops
4, 4'-DDD	97	Increased risk of cancer	Residue from banned pesticide; leaching from landfills or waste sites

Delta-BHC	>99.6	Liver and kidney problems	Runoff/leaching from insecticide
Dibenzo [a,h] anthracene	93.4	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter and refuse
Dibromoacetonitrile	>99.2	Suspected carcinogen	By-product of drinking water disinfection
4, 4'-Dibromo-1, 1-biphenyl	95.7	Weight loss, skin disorders, liver, kidney, thyroid gland and nervous and immune system problems; increased risk of cancer	Leaching from landfills and waste waters from fire retardant and plastics manufacturing facilities
Dibromochloropropane (DBCP)	>95	Reproductive difficulties; kidney damage; increased risk of cancer	Runoff/leaching from use as a nematocide for soil fumigant
Dichloracetonitrile	>98.4	Suspected carcinogen	By-product of drinking water disinfection
o-Dichlorobenzene	>95	Liver, kidney or circulatory system problems	Discharge from industrial chemical factories
1, 3-Dichlorobenzene	>99.8	Liver and kidney damage	Discharge from industrial chemical factories
p-Dichlorobenzene	>98	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories
3, 3'-Dichlorobenzidine	>99.6	Dermatitis; increased risk of cancer	Discharge from industrial chemical factories
1, 2-Dichloroethane	95	Increased risk of cancer	Discharge from industrial chemical factories

1, 1-Dichloroethylene	>99	Liver damage	Discharge from industrial chemical factories
2, 4-Dichlorophenol	>98.7	Liver and kidney damage; nervous and immune system effects	Discharge from pesticide manufacturing factories
1, 2-Dichloropropane	>99	Increased risk of cancer	Discharge from industrial chemical factories
1, 1-Dichloropropanone	>98	Suspected carcinogen	By-product of drinking water disinfection
Dieldrin	99.7	Increased risk of cancer	Runoff/leaching from soil treatment with insecticide
N,N-Diethyl-meta-toluamide (DEET)	>98.5		A pesticide and common active ingredient in insect repellents
Diethyl phthalate	>99.7		Leaching from plastics during use and from waste sites and landfills containing discharge plastics
2, 4-Dimethyl phenol	>98.7	Liver and kidney damage; hematological and nervous system problems	Discharge from industrial chemical and petroleum factories
Dimethyl phthalate	>99.8	Reproductive problems; kidney damage	Discharge from industrial chemical factories
Di-n-butyl phthalate	>99.6	Possible reproductive problems (when large quantities are ingested)	Discharge from industrial chemical factories
4, 6-Dinitro-2methyl phenol	>99.3	Central nervous system and cardiovascular problems; cataracts; skin irritations; kidney and liver damage	Discharge from industrial chemical factories; leaching from landfills and use as a pesticide
2, 4-Dinitrophenol	>99.3	Nausea, vomiting, sweating, dizziness, headache, loss of weight	Pesticide runoff to water and from releases to the air from manufacturing plants



2, 4-Dinitrotoluene	>94.3	Hematological and nervous system effects; increased risk of cancer	Discharge from industrial chemical factories and manufacturing processes ammunition and dyes such as polyurethane, ammunition and dyes
2, 6-Dinitrotoluene	>95.1	See above	See above
Di-n-octyl phthalate (DNOP)	>98.8	Possible liver damage	Release during manufacturing; leaching from plastic during use or in landfills
Dinoseb (DNBP)	99	Reproductive difficulties	Runoff from herbicides used on soybeans and vegetables
1, 2-Diphenylhydrazine	>99.0	Increased risk of cancer	Leaching from waste sites
Ethinyl Estradiol (17-alpha ethynyl estradiol) or EE2	98	Potential endocrine disrupting compound (EDC)	Component of combined oral contraceptives
Endosulfan sulfate	95.4	Liver, kidney and reproductive damage; endocrine disruption	Breakdown of alpha and beta endosulfan isomers
Endrin	>95	Liver problems; nervous system effects	Residue of banned insecticide
Endrin aldehyde	>99.0		Breakdown of endrin
Estrone	>96.9		A prescription birth control drug in the pharmaceutical drug category
Ethylbenzene	>95	Liver and kidney damage	Discharge from petroleum refineries
Ethylene dibromide	>95	Problems with liver, stomach, reproductive system and kidneys; increased risk of cancer	Discharge from petroleum refineries

Fluranthene	>98.2	Liver and kidney damage; increased risk of cancer	Release from dye, pharmaceutical, and agrochemical manufacturing facilities
Fluorine	>99.7	Hematological effects	Release from dye, pesticide, thermoset plastic and pharmaceutical manufacturing facilities
gamma-BHC (Lindane)	>95	Liver and kidney damage; increased risk of cancer	Runoff/leaching from insecticide
Guthion	>99.9	Nervous system problems; personality changes	Runoff/leaching from insecticide
Heptachlor	>95	Liver and central nervous system damage; increased risk of cancer	Residue from banned termiticide
Heptachlor epoxide	>95	Liver damage; increased risk of cancer	Breakdown of heptachlor
Hexachlorobenzene	>98.8	Liver and kidney damage; reproductive difficulties; benign tumours of endocrine glands; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories
Hexachlorobutadiene	>98	Kidney and liver damage; increased risk of cancer	Discharge from industrial chemical factories
Hexachlorocyclopenta diene	>99	Kidney and stomach damage	Discharge from chemical factories; runoff from pesticide use
Hexachloroethane	>96.6	Liver and kidney damage; increased risk of cancer	Reaction of certain carbon compounds with chlorine; incineration of chlorinated hydrocarbons; runoff from insecticide use

Hydrocarbons	>91.3		Gasoline, kerosene, diesel fuel ground contamination
Ibuprofen	95.1		An over-the-counter pain reliever and anti-inflammatory medication and considered a pharmaceutical contaminant
Isophorone	>98.4	Kidney damage; possible reproductive problems	Discharge from chemical factories
Lead at pH 6.5	>95	Infants and children: delays in physical or mental development Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits
Lead at pH 8.5	>95	Infants and children: delays in physical or mental development Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits
Linuron	>96.2		Herbicide often used in the control of grasses and weeds
Malathion	>99.0	Nervous system problems	Runoff from insecticide use on farms and in gardens
Meprobamate	>95.2		Compound found in anti-anxiety drugs
Mercury at pH 6.5	>90	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland
Mercury at pH 8.5	>90	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland

Methoxychlor	>95	Liver, kidney and heart tissue damage; reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Metolachlor	>98.5		An organic compound that is widely used as a herbicide
Microcystin LR	99.6	Liver damage, increased risk of cancer	
MTBE (Methyl-tert-butyl-ether)	>95	Effects taste and odour of water, suspected carcinogen	Leaking underground and above ground fuel storage tanks, pipelines, refuelling spills, automobile accidents damaging the fuel tank, consumer disposal of "old" gasoline, emissions from older marine engines, and to a lesser degree, storm water runoff, and precipitation mixed with MTBE in the air
MX (MutagenX)	96.0	Increased risk of cancer	
Naphthalene	>99.7	Hematological problems; increased risk of cancer	Runoff from use as fumigant (moth repellent); discharge from industrial chemical factories
Naproxen	>97.0		An over-the-counter pain reliever and anti-inflammatory medication considered a pharmaceutical contaminant
Nitrobenzene	>98.5	Liver and kidney damage; reproductive problems; increased risk of cancer	Release in emissions and wastewater during its manufacture, processing and uses as a solvent
2-Nirtophenol	>99.5	Liver and kidney damage; nervous system problems	Discharge from chemical factories during manufacturing; breakdown of pesticides

4-Nitrophenol	>99.8	Lung and nervous system problems	Discharge from chemical factories during manufacturing; runoff from use as fungicide; breakdown of pesticides
N-Nitrosodi-n-propylamine	>99.2	Increased risk of cancer	Leaching from waste sites and use as a weed killer
N-Nitrosodiphenylamine	>99.1	Increased risk of cancer	Leaching from waste sites
Nonyl phenol	96.2		A collection of compounds often used as a precursor to commercial detergents
Parathion	>99.9	Hematological problems	Runoff from use as insecticide
PCB-1016	>98.8	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
PCB-1221	>99.6	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
PCB-1232	>98.4	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
PCB-1242	>99.2	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals

PCB-1248	>99.4	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
PCB-1254	>97.5	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	>99	Liver or kidney problems; reproductive effects; increased risk of cancer	Discharge from wood preserving factories; residue from banned herbicide
Phenanthrene	>99.0	Increased risk of cancer	Discharge from petroleum refineries; leaching from waste sites; release from manufacturing insecticides, dyes and plastics
Phenol	>98.1	Diarrhea and digestive problems; skin discoloration and eruptions; developmental effects	Runoff from landfills and hazardous waste sites; discharge from plastic and phenol manufacturing plants
Phenytoin	>96.1		An anti-epileptic drug
Pyrene	>98.1	Kidney damage	Release from manufacturing insecticides, dyes and plastics
Radon	>95	Increased risk of cancer	Erosion of natural deposits
Simazine	>95	Hematological problems	Herbicide runoff
Strychnine	>99.8	Kidney and brain damage	Runoff from use as pesticide
Styrene	>95	Liver, kidney, and circulatory problems	Discharge from rubber and plastic factories; leaching from landfills

2, 4, 5 TP (Silvex)	>95	Liver and kidney damage	Residue of banned herbicide
2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD)	>99.9	Reproductive difficulties; increased risk of cancer	Emission from waste incineration and other combustion; discharge from chemical factories
2, 3, 7, 8-Tetrachlorodibenzofuran (TCDF)	>99.9	Skin, respiratory and nervous system problems	Emission from waste incineration and other combustion; discharge from chemical factories
1, 1, 2, 2-Tetrachloroethane	>99	Increased risk of cancer	Residue from use as pesticide
Tetrachloroethylene	>95	Liver damage; increased risk of cancer	Discharge from factories and dry cleaners
Toluene	>95	Nervous system, kidney and liver problems	Discharge from petroleum refineries
Toxaphene	>90	Kidney, liver, and thyroid problems; central nervous system effects; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle
trans-1, 2-Dichloroethylene	>99	Liver damage	Discharge from industrial chemical factories
trans-1, 3-Dichloropropene	>99.9	Liver and kidney damage; increased risk of cancer	Runoff from use as pesticide
Tribromoacetic acid	>98	Increased risk of cancer	By-product of drinking water disinfection
Trichloroacetonitrile	>98.6	Increased risk of cancer	By-product of drinking water disinfection
1, 2, 4-Trichlorobenzene	>99	Changes in adrenal glands	Discharge from textile finishing factories

1, 1, 1-Trichloroethane	95	Liver, nervous system, and circulatory problems	Discharge from metal degreasing sites and other factories
1, 1, 2-Trichloroethane	>99	Liver, kidney, and immune system problems	Discharge from industrial chemical factories
Trichloroethylene	>95	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories
2, 4, 6-Trichlorophenol	>98.7	Reproductive and developmental problems; liver and kidney damage; increased risk of cancer	Runoff from use in pesticides
1, 1, 1-Trichloropropanone	>95	Suspected carcinogen	By-product of drinking water disinfection
Trihalomethanes (TTHM's) includes: chloroform (surrogate chemical), bromoform, bromodichloromethane, chlorodibromomethane	>95	Liver, kidney, and central nervous system problems; increased risk of cancer	By-product of drinking water disinfection
Trimethoprim	>96.3		An antibiotic medication
Tris (2-carboxyethyl) phosphine (TCEP)	>98.0		A chemical compound used as a flame retardant, plasticiser and viscosity regulator in various types of polymers including polyurethanes, polyester resins and polyacrylates
Tris (1,3-dichloro-2-propyl) phosphate (TCPP)	>97.9		A chemical compound used as a flame retardant
Vinyl chloride	>93.9	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories

VOC's (volatile organic compounds) tested as chloroform	>95	Liver and kidney damage; increased risk of cancer	Chlorination by-product; discharge from industrial chemical factories
Xylenes (m-xylene o-xylene p-xylene)	>99.8	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories