

eSpring Contaminant Reduction List

(Including Health Effects & Sources of Contamination)

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

Contaminant	CAS Number	% Reduced	Potential Health Effects from Ingestion of Water	Sources of Contaminant in Drinking Water
Acenaphthene	83-32-9	>99.7	Headache, fatigue, nausea; development of skin allergy; liver and kidney damage	Runoff/leaching from use as insecticide/fungicide
Acenaphthylene	208-96-8	>99.7	See Above	Dehydration of acenaphthene
Alachlor	15972-60-8	>95	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops
Aldicarb	116-06-3	99.8	Central nervous system and neurological problems	Runoff/leaching from soil treatment with insecticide
Aldrin	309-00-2	97.4	Increased risk of cancer	Runoff/leaching from soil treatment with insecticide
Alpha – BHC See Lindane	319-84-6	>99.6	Liver and kidney damage; increased risk of cancer	Runoff/leaching from insecticide
Alpha – Endosulfan	959-98-8	97.1	Endocrine disruption	Runoff from insecticide used on food crops

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Anthracene	120-12-7	>99.6	Skin damage, gastrointestinal tract; hematological and lymphoid systems problems	Release from dye manufacturing or wood preserving facilities; runoff from insecticide use
Asbestos	12001-29-5	>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	29122-68-7	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	1912-24-9	>90	Cardiovascular system problems; reproductive difficulties; increased risk of cancer	Runoff from herbicide used on row crops; leaching from wastewater at manufacturing sites
Benzene	71-43-2	>95	Anemia; decreased in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills
Benzidine	92-87-5	>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	207-08-9	98.1	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter, garbage
Benzo[a]anthracene	56-55-3	>99.3	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter, garbage
Benzo[a]pyrene	50-32-8	92.5	Reproductive difficulties; skin	Leaching from linings of water storage tanks and

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			changes; increased risk of cancer	distribution lines
Benzo[b]fluoranthene	205-98-2	98.7	Increased risk of cancer	Release from dye manufacturing or wood preserving facilities; product of incomplete combustion of fossil fuel, organic matter, garbage
Benzo[g,h,i]-perylene	191-24-2	91.0	Possible skin, liver, and related tissue problems	Product of incomplete combustion of fossil fuel, organic matter, garbage
Beta-BHC	319-85-7	>99.6	Liver and kidney problems; increased risk of cancer	Runoff/leaching from insecticide
Beta-Endosulfan	33213-65-9	97.5	Endocrine disruption	Runoff from insecticide used on food crops
Bis(2-Chloroethoxy) methane	111-91-1	>99.3	Skin and eye irritations	Discharge from rubber manufacturing plants
Bis(2-chloroethyl) ether (BCEE)	111-44-4	>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	108-60-1	>98.3	Increased risk of cancer	Discharge from dye, pharmaceutical and industrial chemical factories
Bis(2-ethyl-hexyl) phthalate	117-81-7	99.0	Developmental, liver and gastrointestinal problems; increased risk of cancer	Discharge during production of PVC and vinyl chloride resins
Bisphenol A (BPA)	80-05-7	99.1		A chemical compound used as a plasticizer
Bromochloroacetonitrile	83463-62-1	>98.2	Suspected carcinogen	Byproduct of drinking water disinfection
Bromodichloromethane – see Trihalomethanes (TTHM's)				
Bromoform – see Trihalomethanes (TTHM's)				

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4-Bromophenyl phenyl ether	101-55-3	>99.1		Leaching from waste sites
Butyl benzyl phthalate	85-68-7	>99.4	Reproductive and developmental problems; increased risk of cancer	Release from PVC manufacturing facilities; leaching from waste sites
Carbamazepine	298-46-4	>98.3		An anti-convulsant and mood-stabilizing drug
Carbaryl	63-25-2	>98.3	Cholinesterase inhibition causing headaches, memory loss, muscle weakness and cramps; liver and kidney problems	Leaching from soil treated with insecticide
Carbofuran	1563-66-2	>95	Problems with blood or nervous system; reproductive difficulties	Leaching from soil fumigant used on rice and alfalfa
Carbon tetrachloride	56-23-5	>95	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities
Chlordane	57-74-9	>95	Liver or nervous system problems; increased risk of cancer	Residue from banned termiticide
Chlorobenzene	108-90-7	>95	Liver or kidney problems	Discharge from chemical and agricultural factories
Chlorodibromomethane – see Trihalomethanes (TTHM's)				
2-chloroethyl vinyl ether	110-75-8	>99.9		Release during manufacture of pharmaceuticals
Chloroform – see Trihalomethanes (TTHM's) or VOC's		>95	Suspected carcinogen	
4-Chloro-3-methylphenol	59-50-7	>99.1	Lung and skin problems	By-product of water chlorination treatment; discharge from waste waters at manufacturing facilities
2-chloronaphthalene	91-58-7	94	Used in solvent, wood preservatives, immersion oil for	Toxic Pollutants

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			testing refractive index and as additives in cable insulation, engine oil, electroplating compounds and capacitors. They are used in producing dyes.	
2-Chlorophenol	95-57-8	>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	7005-72-3	>99.1		
Chloropicrin	76-06-2	>99.2	Toxicity to humans, including carcinogenicity, reproductive and developmental toxicity, neurotoxicity and acute toxicity	Runoff from use as pesticide and byproduct of drinking water disinfection
Chlorpyrifos	2921-88-2	>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	218-01-9	>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	156-59-2	>99	Kidney and liver damage; nervous and hematological system problems	Discharge from industrial chemical factories
cis-1, 3-Dichloropropylene	10061-01-5	>99	Bladder and kidney damage	Leaching from soil treated with nematocide; leaching from hazardous waste sites and production facilities
Cysts	n/a	>99.95%	Gastroenteric diseases such as cryptosporidiosis	Human and fecal animal waste
2-4-D	94-75-7	>95	Kidney, liver and hematological	Runoff from herbicide used on row crops

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			system problems	
4, 4'-DDD	72-54-8	97	Increased risk of cancer	Residue from banned pesticide; leaching from landfills or waste sites
Delta-BHC	319-86-8	>99.6	Liver and kidney problems	Runoff/leaching from insecticide
Dibenzo[a,h] anthracene	53-70-3	93.4	Increased risk of cancer	Leaching from waste sites of manufactured gas facilities; product of incomplete combustion of fossil fuel, organic matter and garbage
Dibromoacetonitrile	3252-43-5	>99.2	Suspected carcinogen	Byproduct of drinking water disinfection
4, 4'-Dibromo-1, 1-biphenyl	92-86-4	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)	96-12-8	>95	Reproductive difficulties; kidney damage; increased risk of cancer	Runoff/leaching from use as a nematocide for soil fumigant
Dichloracetonitrile	3018-12-0	>98.4	Suspected carcinogen	Byproduct of drinking water disinfection
o-Dichlorobenzene	95-50-1	>95	Liver, kidney or circulatory system problems	Discharge from industrial chemical factories
1, 3-Dichlorobenzene	541-73-1	>99.8	Liver and kidney damage	Discharge from industrial chemical factories
p-Dichlorobenzene	106-46-7	>98	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories
3, 3'-Dichlorobenzidine	91-94-1	>99.6	Dermatitis; increased risk of cancer	Discharge from industrial chemical factories
1, 2-Dichloroethane	107-06-2	95	Increased risk of cancer	Discharge from industrial chemical factories
1, 1-Dichloroethylene	540-59-0	>99	Liver damage	Discharge from industrial chemical factories

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2, 4-Dichlorophenol	120-83-2	>98.7	Liver and kidney damage; nervous and immune system effects	Discharge from pesticide manufacturing factories
1, 2-Dichloropropane	78-87-5	>99	Increased risk of cancer	Discharge from industrial chemical factories
1, 1-Dichloropropanone	513-88-2	>98	Suspected carcinogen	Byproduct of drinking water disinfection
Dieldrin	60-57-1	99.7	Increased risk of cancer	Runoff/leaching from soil treatment with insecticide
N,N-Diethyl-meta-toluamide (DEET)	134-62-3	>98.5		A pesticide and common active ingredient in insect repellents
Diethyl phthalate	84-66-2	>99.7		Leaching from plastics during use and from waste sites and landfills containing discharge plastics
2, 4-Dimethyl phenol	105-67-9	>98.7	Liver and kidney damage; hematological and nervous system problems	Discharge from industrial chemical and petroleum factories
Dimethyl phthalate	131-11-3	>99.8	Reproductive problems; kidney damage	Discharge from industrial chemical factories
Di-n-butyl phthalate	84-74-2	>99.6	Possible reproductive problems (when large quantities are ingested)	Discharge from industrial chemical factories
4, 6-Dinitro-2methyl phenol	534-52-1	>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	51285	>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	121-14-2	>94.3	Hematological and nervous system effects; increased risk of cancer	Discharge from industrial chemical factories and manufacturing processes such as polyurethane,

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				ammunition and dyes
2, 6-Dinitrotoluene	606-20-2	>95.1	See above	See above
Di-n-octyl phthalate (DNOP)	117-84-0	>98.8	Possible liver damage	Release during manufacturing; leaching from plastic during use or in landfills
Dinoseb (DNBP)	88-55-7	99	Reproductive difficulties	Runoff from herbicides used on soybeans and vegetables
1, 2-Diphenylhydrazine	122-66-7	>99.0	Increased risk of cancer	Leaching from waste sites
Ethinyl Estradiol (17-alpha ethynyl estradiol) or EE2	77538-56-8	98	Potential endocrine disrupting compound (EDC)	Component of combined oral contraceptives
Endosulfan sulfate	1031-07-8	95.4	Liver, kidney and reproductive damage; endocrine disruption	Breakdown of alpha and beta endosulfan isomers
Endrin	72-20-8	>95	Liver problems; nervous system effects	Residue of banned insecticide
Endrin aldehyde	7421-93-4	>99.0		Breakdown of endrin
Estrone	53-16-7	>96.9		A prescription birth control drug in the pharmaceutical drug category
Ethylbenzene	100-41-4	>95	Liver and kidney damage	Discharge from petroleum refineries
Ethylene dibromide	106-93-4	>95	Problems with liver, stomach, reproductive system and kidneys; increased risk of cancer	Discharge from petroleum refineries
Fluoranthene	206-44-0	>98.2	Liver and kidney damage; increased risk of cancer	Release from dye, pharmaceutical, and agrochemical manufacturing facilities
Fluorene	86-73-7	>99.7	Hematological effects	Release from dye, pesticide, thermoset plastic and pharmaceutical manufacturing facilities

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gamma-BHC (Lindane)	58-89-9	>95	Liver and kidney damage; increased risk of cancer	Runoff/leaching from insecticide
Guthion	86-50-0	>99.9	Nervous system problems; personality changes	Runoff/leaching from insecticide
Heptachlor	76-44-8	>95	Liver and central nervous system damage; increased risk of cancer	Residue from banned termiticide
Heptachlor epoxide	1024-57-3	>95	Liver damage; increased risk of cancer	Breakdown of heptachlor
Hexachlorobenzene	118-74-1	>98.8	Liver and kidney damage; reproductive difficulties; benign tumors of endocrine glands; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories
Hexachlorobutadiene	87-68-3	>98	Kidney and liver damage; increased risk of cancer	Discharge from industrial chemical factories
Hexachlorocyclopentadiene	77-47-4	>99	Kidney and stomach damage	Discharge from chemical factories; runoff from pesticide use
Hexachloroethane	67-72-1	>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	n/a	>91.3		Gasoline, kerosene, diesel fuel ground contamination
Ibuprofen	15687-27-1	95.1		An over-the-counter pain reliever and anti- inflammatory medication and considered a pharmaceutical contaminant
Isophorone	78-59-1	>98.4	Kidney damage; possible reproductive problems	Discharge from chemical factories

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Lead at pH 6.5	7439-92-1	>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	7439-92-1	>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	330-55-2	>96.2		An herbicide often used in the control of grasses and weeds
Malathion	121-75-5	>99.0	Nervous system problems	Runoff from insecticide use on farms and in gardens
Meprobamate	57-53-4	>95.2		Compound found in anti-anxiety drugs
Mercury at pH 6.5	7439-97-6	>90	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland
Mercury at pH 8.5	7439-97-6	>90	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland
Methoxychlor	72-43-5	>95	Liver, kidney and heart tissue damage; reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Metolachlor	51218-45-2	>98.5		An organic compound that is widely used as an herbicide
Microcystin LR	n/a	99.6	Liver damage, increased risk of cancer	
MTBE (Methyl-tert-butyl-ether)	1634-04-4	>95	Effects taste and odor of water, suspected carcinogen	Leaking underground and above ground fuel storage tanks, pipelines, refueling spills, automobile accidents damaging the fuel tank, consumer disposal of "old" gasoline, emissions from older marine engines, and to

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				a lesser degree, storm water runoff, and precipitation mixed with MTBE in the air
MX (MutagenX)	77439-76-0	96.0	Increased risk of cancer	
Naphthalene	91-20-3	>99.7	Hematological problems; increased risk of cancer	Runoff from use as fumigant (moth repellent); discharge from industrial chemical factories
Naproxen	22204-53-1	>97.0		An over-the-counter pain reliever and anti-inflammatory medication considered a pharmaceutical contaminant
Nitrobenzene	98-95-3	>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	88-75-5	>99.5	Liver and kidney damage; nervous system problems	Discharge from chemical factories during manufacturing; breakdown of pesticides
4-Nirtophenol	100-02-7	>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	621-64-7	>99.2	Increased risk of cancer	Leaching from waste sites and use as a weed killer
N-Nitroso-diphenylamine	86-30-6	>99.1	Increased risk of cancer	Leaching from waste sites
Nonyl phenol	25154-52-3	96.2		A collection of compounds often used as a precursor to commercial detergents
Parathion	56-38-2	>99.9	Hematological problems	Runoff from use as insecticide
PCB-1016	12674-11-2	>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

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PCB-1221	11104-28-2	>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	11141-16-5	>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	53469-21-9	>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	12672-29-6	>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	11097-69-1	>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
PCB-1260 (Aroclor)	11096-82-5	>95	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	87-86-5	>99	Liver or kidney problems; reproductive effects; increased risk of cancer	Discharge from wood preserving factories; residue from banned herbicide
Phenanthrene	85-01-8	>99.0	Increased risk of cancer	Discharge from petroleum refineries; leaching from

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				waste sites; release from manufacturing insecticides, dyes and plastics
Phenol	108-95-2	>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	57-41-0	>96.1		An anti-epileptic drug
Pyrene	129-00-0	>98.1	Kidney damage	Release from manufacturing insecticides, dyes and plastics
Radon	10043-92-2	>95	Increased risk of cancer	Erosion of natural deposits
Simazine	122-34-9	>95	Hematological problems	Herbicide runoff
Strychnine	60-41-3	>99.8	Kidney and brain damage	Runoff from use as pesticide
Styrene	100-42-5	>95	Liver, kidney, and circulatory problems	Discharge from rubber and plastic factories; leaching from landfills
2, 4, 5 TP (Silvex)	93-72-1	>95	Liver and kidney damage	Residue of banned herbicide
2, 3, 7, 8-Tetrachlorodibenzopara-dioxin (TCDD)	1746-01-6	>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)	51207-31-9	>99.9	Skin, respiratory and nervous system problems	Emission from waste incineration and other combustion; discharge from chemical factories
1, 1, 2, 2-Tetrachloroethane	79-34-5	>99	Increased risk of cancer	Residue form use as pesticide
Tetrachloroethylene	127-18-4	>95	Liver damage; increased risk of cancer	Discharge from factories and dry cleaners
Toluene	108-88-3	>95	Nervous system, kidney and liver problems	Discharge from petroleum refineries

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Toxaphene	8001-35-2	>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	156-60-5	>99	Liver damage	Discharge from industrial chemical factories
trans-1, 3-Dichloroporpene	542-75-6	>99.9	Liver and kidney damage; increased risk of cancer	Runoff from use as pesticide
Tribromoacetic acid	75-96-7	>98	Increased risk of cancer	Byproduct of drinking water disinfection
Trichloroacetonitrile	545-06-2	>98.6	Increased risk of cancer	Byproduct of drinking water disinfection
1, 2, 4-Trichlorobenzene	120-82-1	>99	Changes in adrenal glands	Discharge from textile finishing factories
1, 1, 1-Trichloroethane	71-55-6	95	Liver, nervous system, and circulatory problems	Discharge from metal degreasing sites and other factories
1, 1, 2-Trichloroethane	79-00-5	>99	Liver, kidney, and immune system problems	Discharge from industrial chemical factories
Trichloroethylene	79-01-6	>95	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories
2, 4, 6-Trichlorophenol	88-06-2	>98.7	Reproductive and developmental problems; liver and kidney damage; increased risk of cancer	Runoff from use in pesticides
1, 1, 1-Trichloropropanone	918-00-3	>95	Suspected carcinogen	Byproduct of drinking water disinfection
Trihalomethanes (TTHM's) includes: chloroform (surrogate chemical), bromoform, bromodichloromethane, chlorodibromomethane	n/a	>95	Liver, kidney, and central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection

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Trimethoprim	738-70-5	>96.3		An antibiotic medication
Tris(2-carboxyethyl)phosphine (TCEP)	5961-85-3	>98.0		A chemical compound used as a flame retardant, plasticizer and viscosity regulator in various types of polymers including polyurethanes, polyester resins and polyacrylates
Tris(1,3-dichloro-2-propyl)phosphate (TCPP)	13674-87-8	>97.9		A chemical compound used as a flame retardant
Vinyl chloride	75-01-4	>93.9	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories
VOC's (volatile organic compounds) tested as chloroform	67-66-3	>95	Liver and kidney damage; increased risk of cancer	Chlorination byproduct; discharge from industrial chemical factories
Xylenes (m-xylene o-xylene p-xylene)	1330-20-7	>99.8	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories