

**Water Quality Limits Associated With Beneficial Use Impairment
for Constituents of Concern
Related to Food Processing Waste Discharges to Land**

Attachment A

Constituent / Parameter	Water Quality Objective	Beneficial Use	Recommended Numerical Limit(s)		
			Source / Effect	Limit	Units
Alkalinity (as CaCO ₃)	Chemical Constituents	AGR	Ayers & Westcot / lime deposits on sprinkler irrigated fruit & vegetables	90	mg/L (ppm)
			UC Davis / plugging of micro-irrigation system emitters	120	mg/L (ppm)
Ammonia and ammonium	Tastes and Odors	MUN	Amoore and Hautala / odor threshold	1.5	mg/L (ppm)
	Toxicity - humans	MUN	USEPA Draft Health Advisory	30	mg/L (ppm)
Arsenic	Chemical Constituents	MUN	California Primary MCL / based on old toxicity info; not consider cancer	50	ug/L (ppb)
		AGR	USEPA Primary MCL / future use protection; CA MCL will be at least as low as	10	ug/L (ppb)
	Toxicity - humans	MUN	Ayers & Westcot / reduced yield of sensitive crops	100	ug/L (ppb)
Chloride	Chemical Constituents	MUN	California Public Health Goal for Drinking Water / cancer risk	0.004	ug/L (ppb)
		MUN	California Secondary MCL / recommended limit	250	mg/L (ppm)
	AGR	California Secondary MCL / upper limit	500	mg/L (ppm)	
	Tastes and Odors	MUN	Ayers & Westcot / reduced yield of sensitive crops irrigated via sprinklers	106	mg/L (ppm)
Electrical conductivity (EC)	Chemical Constituents	MUN	California Secondary MCL / recommended limit	250	mg/L (ppm)
		MUN	California Secondary MCL / upper limit	900	umhos/cm
	AGR	Ayers & Westcot / reduced yield of sensitive crops irrigated via sprinklers	1600	umhos/cm	
	Tastes and Odors	MUN	California Secondary MCL	700	umhos/cm
Hardness (as CaCO ₃)	Chemical Constituents	AGR	California Secondary MCL	900	umhos/cm
Iron	Chemical Constituents	MUN	University of Florida / Plugging of micro-irrigation system emitters	150	mg/L (ppm)
		AGR	California Secondary MCL	0.3	mg/L (ppm)
	Tastes and Odors	MUN	University of Florida / Plugging of micro-irrigation system emitters	0.1	mg/L (ppm)
Manganese	Chemical Constituents	MUN	Ayers & Westcot / reduced yield of sensitive crops	5	mg/L (ppm)
		AGR	California Secondary MCL	0.3	mg/L (ppm)
	Tastes and Odors	MUN	California Secondary MCL	0.05	mg/L (ppm)
	Toxicity - humans	MUN	University of Florida / Plugging of micro-irrigation system emitters	0.1	mg/L (ppm)
Nitrate plus Nitrite (expressed as nitrogen)	Chemical Constituents	MUN	Ayers & Westcot / reduced yield of sensitive crops	0.2	mg/L (ppm)
		MUN	California Secondary MCL	0.05	mg/L (ppm)
Nitrite (expressed as nitrogen)	Chemical Constituents	MUN	California DHS Action Level for drinking water	0.5	mg/L (ppm)
		MUN	California Primary MCL	10	mg/L (ppm)
pH	Chemical Constituents	MUN	California Public Health Goal for Drinking Water	10	mg/L (ppm)
		AGR	California Primary MCL	1	mg/L (ppm)
Sodium	Chemical Constituents	MUN	California Public Health Goal for Drinking Water	1	mg/L (ppm)
		AGR	USEPA Secondary MCL	6.5 to 8.5	std units
	Toxicity - humans	MUN	Ayers & Westcot / reduced yield of sensitive crops	6.5 to 8.4	std units
Sulfate	Chemical Constituents	MUN	Ayers & Westcot / reduced yield of sensitive crops irrigated via sprinklers	69	mg/L (ppm)
		MUN	Taste and odor threshold (USEPA Drinking Water Advisory)	30 to 60	mg/L (ppm)
	Toxicity - humans	MUN	USEPA Drinking Water Advisory for persons on restricted sodium diet	20	mg/L (ppm)
Total Coliform Organisms	Chemical Constituents	MUN	California Secondary MCL / recommended level	250	mg/L (ppm)
		MUN	California Secondary MCL / upper level	500	mg/L (ppm)
	Tastes and Odors	MUN	California Secondary MCL / recommended level	250	mg/L (ppm)
	Toxicity - humans	MUN	USEPA Drinking Water Advisory	500	mg/L (ppm)
Total Dissolved Solids (TDS)	Chemical Constituents	MUN	Basin Plan / indicator of pathogenic microorganisms	<2.2	MPN/100mL
		MUN	California Secondary MCL / recommended level	500	mg/L (ppm)
	Tastes and Odors	AGR	California Secondary MCL / upper level	1,000	mg/L (ppm)
		MUN	Ayers & Westcot / reduced yield of sensitive crops irrigated via sprinklers	450	mg/L (ppm)
		MUN	California Secondary MCL	500	mg/L (ppm)

Notes:

MUN = Municipal and Domestic Supply

AGR = Agricultural Supply

MCL = Maximum Contaminant Level for drinking water

References:

Ayers, R. S. and D. W. Westcot, *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)

University of California, Davis (<http://ceventura.ucdavis.edu/ben/pubs/irrigation/clogging.htm>)

J.E. Amoore and E. Hautala, Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution, *Journal of Applied Toxicology*, Vol. 3, No. 6 (1983)

University of Florida, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, Bulletin 258, *11 Causes and Prevention of Emitter Plugging in Microirrigation Systems*(April 1990)