

	Unit	Range or boundary values for suitability as drinking water for animals	Comments and remarks (possible disturbances)	Limits for drinking water according to human regulations (Germany)
Physicochemical characteristics				
pH ^e		> 5 < 9	Corrosion of water pipes	6.5–9.5
Electrical conductivity	µS cm ⁻¹	< 3000	Higher values may be associated with diarrhea, reduced taste	2500
Soluble salts; total	g L ⁻¹	< 2.5		
Oxidable ^f	mg L ⁻¹	< 15	Measurement for oxidation potential in water	5
Chemical substances				
Ammonia (NH ₄ ⁺)	mg L ⁻¹	< 3	Indication of impurities	0.5
Arsenic (As)	mg L ⁻¹	< 0.05	Health disturbances, reduced yields	0.01
Lead (Pb)	mg L ⁻¹	< 0.1	Avoidance of residues	0.01
Cadmium (Cd)	mg L ⁻¹	< 0.02	Avoidance of residues	0.005
Calcium (Ca) ^g	mg L ⁻¹	500	Lime scale in pipelines, technical malfunctions	Presently no limit
Chlorine (Cl ⁻)	mg L ⁻¹	< 250 ^a	Indication of contamination (e.g., faeces), wet excreta ^a	250
		< 500 ^b		
Iron (Fe) ^g	mg L ⁻¹	< 3	Palatability influenced, technical malfunctions, biofilms, antagonist to other trace elements	0.2
Fluorine (F)	mg L ⁻¹	< 1.5	Disturbances of teeth and bones	1.5
Potassium (K)	mg L ⁻¹	< 250 ^a	see chlorine ^a	Presently no limit
		< 500 ^b		
Copper (Cu) ^h	mg L ⁻¹	< 2	Consider total intake of sheep and calves	2
Manganese (Mn)	mg L ⁻¹	< 4	Precipitation in water distribution system, biofilms possible	0.05
Sodium (Na)	mg L ⁻¹	< 250 ^a	see chlorine ^a	200
		< 500 ^b		
Nitrate (NO ₃ ⁻)	mg L ⁻¹	< 300 ^c	Methemoglobinemia possible, consider total NO ₂ and NO ₃ intake	50
		< 200 ^d		
Nitrite (NO ₂ ⁻)	mg L ⁻¹	< 30		0.5
Mercury (Hg)	mg L ⁻¹	< 0.003	General disturbances, intoxications	0.001
Sulfate (SO ₄ ²⁻)	mg L ⁻¹	< 500	Diarrhea	240
Zinc (Zn) ⁱ	mg L ⁻¹	< 5	Mucous membrane alterations	Presently no limit

^a Poultry. ^b Further animal species. ^c Ruminants. ^d Calves and other animals. ^e pH < 5: acid and possible corrosive; addition of organic acids may decrease pH. ^f Parameter for organic substances in water (< 5 mg L⁻¹ for added water). ^g Deposits in pipelines and drinking bowls. ^h Recommendations difficult for sheep and milk replacers for calves (use milk replacers low in copper). ⁱ Recommendations for milk replacer for calves.