

# Water Words Dictionary—Appendix B–8

## WATER TREATMENT—TECHNOLOGIES

### Overview of Water Treatment Technologies, Options, and Acceptability

Treatment Requirements	Technology Options to Meet Regulatory Requirements	Stage of Acceptability	Comments
Filtration of surface water supplies to control turbidity and microbial contamination	Slow sand filtration	Established	Operationally simple; low operating cost; requires relatively low turbidity source water
	Package plant filtration	Established	Compact; variety of process combinations available
	Ultrafiltration (membrane filtration)	Emerging	Experimental, expensive
	Cartridge filtration	Emerging	Experimental, expensive
Disinfection	Chlorine	Established	Most widely used method; concerns about health effects of by-products
	Ozone	Established	Very effective but requires a secondary disinfectant, usually some form of chlorine
	Ultraviolet radiation	Established	Simple, no established harmful by-products, but requires secondary disinfectant, usually some form of chlorine
Organic contamination control	Granular activated carbon (GAC)	Best Available Technology (BAT)	Highly effective; potential waste disposal issues; expensive
	Packed column aeration	Best Available Technology (BAT)	Highly effective for volatile compounds; potential air emissions issues
	Diffused aeration	Established	Variable removal effectiveness
	Multiple tray aeration	Established	Variable removal effectiveness
	Higee aeration	Experimental	Compact, high energy requirements; potential air emissions issues
	Mechanical aeration	Experimental	Mostly for wastewater treatment; high energy requirements, easy to operate
	Catenary grid	Experimental	Performance data scarce; potential air emissions issues

Treatment Requirements	Technology Options to Meet Regulatory Requirements	Stage of Acceptability	Comments
Inorganic contamination control	Membranes (reverse osmosis and electro dialysis)	Established	Highly effective; expensive; potential waste disposal issues
	Ion exchange	Established	Highly effective; expensive; potential waste disposal issues
	Activated alumina	Established	Highly effective; expensive; potential waste disposal issues
	Coagulation/Filtration	Established	May be difficult for very small systems
	Aeration	Established	Preferred technology for radon removal
	Granular Activated Carbon (GAC)	Established	Highly effective for radon removal; potential waste disposal issues
Corrosion controls	pH control	Established	Potential to conflict with other treatments
	Corrosion inhibitors	Established and emerging	Variable effectiveness depending on type of inhibitor

Sources: Adapted from U.S. Environmental Protection Agency, Office of Drinking Water and Center for Environmental Research Information, *Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities*, Cincinnati, Ohio, March 1990, and reprinted from *Environmental Pollution Control Alternatives: Drinking Water Treatment for Small Communities*, Center for Environmental Research Information, U.S. Environmental Protection Agency, Cincinnati, Ohio, April 1990, pages 24-25.