

Treating Water to Control the Spread of Invasive Weeds, Insects, and Diseases

Adding chlorine to water is an effective means of controlling the spread of a number of invasive and nuisance species. If chlorination is not done properly, the health and safety impacts can be severe.

When treating water to be used to prepare retardant and other fire chemicals, the chlorination products must be added to the water, stirred, and allowed to sit for approximately 10 minutes BEFORE using it to mix fire chemicals.

Under no circumstances should the concentrated chlorine compounds (including Clorox®) be added directly to the fire retardant as this can create harmful and/or explosive fumes.

The table below provides information on the quantities of common chlorine sources, liquid household bleach and dry pool and spa chlorine, necessary for treatment of water based on some known species of concern. All calculations are based on specific concentrations. Many similar products are available that may or may not have the same concentration. The product label will give the concentration of the contents of that container. Additional information based on other concentrations and more treatment options can be found at the web site listed below.

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Target Organism:	Whirling Disease	Chytrid Fungus		Zebra/Quagga Mussels	Didymo
Treatment Time:	10 minutes	10 minutes	30 seconds	Gear Rinse	1 minute
<u>Household bleach (liquid Clorox®) sodium hypochlorite¹. Calculations are based on 6.15% sodium hypochlorite.</u>					
Use Concentration - % ClO ₂	0.05%	0.40%	1.00%	0.25%	0.08%
Use Concentration - ppm or mg/L ClO ₂	500	4000	10000	250	800
Liquid oz. bleach per gallon water	1.12	8.93	22.32	0.558	1.785
Gallons bleach per 100 gallons water	0.9	7.0	17.5	0.5	1.5
<i>Note: Different liquid bleach strengths are sold and can range from 5.25 to 12.5%. The link below contains options for sodium hypochlorite concentrations other than 6.15%.</i>					
<u>Pool & Spa Granular Treatment; dry calcium hypochlorite². Calculations are based on 68% calcium hypochlorite granules.</u>					
Use concentrate (ppm or mg/L Cl ⁻)	238	1905	4763	119	381
Dry ounces product per gallon water	0.02	0.16	0.40	0.01	0.03
Cups product per 100 gallons water	0.25	2.0	5.0	0.12	0.4
<i>Note: Different dry chemical strengths are sold and can range from 60 to 80%. The link below contains options for calcium hypochlorite concentrations other than 68%.</i>					
Link to more information and options for disinfection: http://www.fs.fed.us/r4/resources/aquatic/guidelines/index.shtml					