

Aquatic Facility Rules Fact Sheet #1

What you should know about the Code

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OAR 333-062-1000,
CHAPTER 5.7.3.1.1

5.7.3.1.1.2 Minimum DPD-FC Concentrations

Minimum DPD-FC concentrations shall be maintained at all times in all areas as follows in 5.7.3.1.1.2.1 to 5.7.3.1.1.2.3.

5.7.3.1.2.2 Minimum Bromine Concentrations

Minimum bromine concentrations shall be maintained at all times in all areas as follows:
1) All AQUATIC VENUES: 3.0 ppm (mg/L), and
2) SPAS: 4.00 ppm (mg/L).

PUBLIC HEALTH REASONS:

Disinfection is vital for public health in aquatic venues as it effectively eliminates harmful bacteria, viruses, and other microorganisms that swimmers may encounter. This process helps prevent the spread of waterborne diseases and protects public health by ensuring that water remains clean and safe. It's important to note that disinfection requires time to be effective, so maintaining proper chemical levels is essential for successfully killing pathogens.

Chlorine and Bromine Disinfection

An important part of aquatic venue maintenance is having enough disinfectant, like chlorine or bromine, in your aquatic venue water. This prevents the spread of disease-causing bacteria, viruses, and parasites in the water from swimmers that can be spread if water is swallowed, inhaled, or comes into contact with the skin.

Disinfectants used for aquatic venue treatment come in various forms, including tablets, granules, and liquids. The two main types utilized are chlorine and bromine. Both are effective at eliminating bacteria, viruses, and other harmful microorganisms in water. Each disinfectant has its advantages and disadvantages, so it's important to determine which one is right for your needs.

Free chlorine is commonly referred to as DPD-FC in the rules and is the most common sanitizer in use in Oregon. Chlorine is widely available and affordable, with a broader pH range, meaning it remains effective even if your water is naturally more acidic or alkaline. However, chlorine evaporates more quickly in hot water, leading to the need for more frequent applications. It can also cause more eye and skin irritation and has a harsher byproduct that can affect your water quality.

Combined chlorine, also known as chloramines, is formed when free chlorine reacts with contaminants, such as sweat, urine, and other organic matter (dirt, leaves). This results in a build-up of chloramines, leading to issues like bad odors (chlorine smell) and skin irritation. If your combined chlorine levels are above 0.4 ppm, you may need to superchlorinate or "shock" the aquatic venue. This process breaks apart the combined chlorine molecules and helps to rebalance your aquatic venue's chemistry. Encouraging good swimmer hygiene and providing adequate ventilation are other ways to keep your combined chlorine levels low.

Cyanuric acid (CYA) is often called a "stabilizer" and it helps protect free chlorine from breaking down in sunlight. It can be added separately or found in stabilized chlorine products such as trichlor and dichlor. While CYA can extend chlorine's effectiveness outdoors, it also reduces chlorine efficacy, which is why aquatic venues using CYA must maintain a minimum chlorine concentration of 2 ppm.. See [Fact Sheet #6, Cyanuric Acid](#) for more information. Bromine is also highly effective at killing



Spas must have at least 3ppm of free chlorine and 4ppm bromine at

bacteria, viruses, and other microorganisms. It has a longer residual effect, meaning it lasts longer in the water, requiring fewer applications.

Bromine is stable at higher temperatures, making it ideal for spas, and it has a milder odor that is less irritating to the skin compared to chlorine. However, bromine does come at a higher cost compared to other disinfectants.

Regardless of the disinfectant you choose, it is crucial to maintain a regular sanitation routine and frequently monitor water chemistry to ensure your facility always remains safe for use.

Water Quality	Parameters					
	Pool			Spa		
	Min	Ideal	Max	Min	Ideal	Max
Total Bromine	3.0ppm	3.0-5.0ppm	8.0ppm	4.0ppm	4.0-6.0ppm	8.0ppm
Free Chlorine	1.0ppm	1.0-3.0ppm	10.0ppm	3.0ppm	3.0-5.0ppm	10.0ppm
Free Chlorine (w/ CYA)	2.0ppm	2.0-4.0ppm	10.0ppm	--	--	--
Combined Chlorine	0ppm	0ppm	0.4ppm	0ppm	0ppm	0.4ppm
pH	7.0	7.2-7.6	7.8	7.0ppm	7.2-7.6	7.8ppm
Total Alkalinity	60ppm	60-180ppm	180ppm	60ppm	60-180ppm	180ppm
Cyanuric Acid	0ppm	30-50ppm	90-150ppm*	--	--	--
Temperature	--	--	104°F	--	--	104°F
Calcium Hardness	200ppm	200-400ppm	2500ppm	200ppm	200-400ppm	2500ppm
Clarity	Crystal Clear					
ORP	600mV	650-750mV	900mV	600mV	650-750mV	900mV