

FAQs: Standard Fluorescent & VHO Fluorescent Lighting

Drs. Foster & Smith Educational Staff

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What are fluorescent lights?

A fluorescent lamp consists of a glass tube filled with gas. Electrical energy is passed through the tube causing the gasses within the tube to heat to the point where they glow, producing light. Different spectrums of light are achieved by coating the inside of the tube with different blends of phosphors. As the light passes through the coating, the phosphors produce colors based on their chemical makeup.

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What are the benefits of fluorescent light systems?

Fluorescent light systems are extremely popular due to their low operating cost, lower heat emission, and a wide selection of lamps with color temperatures ideal for both freshwater and marine applications.

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What does T-8 and T-12 stand for?

The "T" number or the T-rating indicates the diameter of the fluorescent lamp. The T-rating of fluorescent lamps are described in increments of 1/8 of an inch. So a T-8 fluorescent lamp is 8/8, or one inch in diameter and a T-12 fluorescent lamp is 12/8 or 1-1/2 inches in diameter.

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What does NO, HO and VHO stand for?

There are many different types of fluorescent lighting systems and the different types are sometimes categorized and distinguished by their light output. NO stands for Normal Output, HO for High Output, and [VHO](#) for Very High Output. Each of these different fluorescent light systems requires ballasts and lamps specific to that system. The lamps of these different systems cannot be interchanged.

VHO fluorescent bulbs are similar in design to standard fluorescent lamps, but using a special [ballast](#), they produce three times more light than a standard fluorescent tube. Instead of using 4 to 6 standard fluorescent lamps, you need only 2 VHO tubes to generate the same amount of light for your aquarium.

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What does CRI stand for?

CRI stands for Color Rendering Index, and is a measurement of the visual quality of light, or how something appears under a particular type of fluorescent lamp. The CRI of a lamp is based on a scale of 0 to 100, with 100 signifying how an object appears under natural daylight conditions. Full spectrum bulbs, or bulbs that emit all the wavelengths of visible light, closely approximate the visual effects of natural sunlight and have a high CRI value. However, keep in mind that high CRI value may not necessarily mean the best coloration. Color-enhancing bulbs take advantage of this fact and emit light from the "warmer" end of the color spectrum to augment and enrich color. Combining full spectrum bulbs with color-enhancing bulbs is a great way to bring out the best coloration while maintaining a "natural" appearance to the aquarium and its inhabitants.

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What is color temperature and the Kelvin rating?

Many aquarium bulbs are categorized or described by their color temperature, signified by their [Kelvin rating \(K-rating\)](#). The K-rating gives us insight to the appearance of the light emitted by the bulb. Bulbs with lower K-ratings tend to produce light that appears warm (i.e. reds, yellows, and oranges) and bulbs with high K-ratings produce light that appears "cool." Sunlight at noon has a K-rating of 5500°K and contains a blend of all the colors of the color spectrum. For this reason, a 5500°K bulb is referred to as a full-spectrum bulb and can be used as a reference point when selecting a bulb based on its K-rating.

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What is the typical application of each of the different types of fluorescent lamps?

In general, fluorescent lamps fall under four basic categories - Color Enhancing, Full Spectrum/Daylight, Actinic, and Plant Lights. Application varies based on lamp characteristics as well as light requirements of the aquarium inhabitants but the following recommendations serve as a basic guide:

Color Enhancing Lights - Emit light from the "warmer" end of the color spectrum to augment and enrich color. Designed to display the colors of your fish to their fullest. Ideal for [fish-only](#) fresh and saltwater aquariums.

Full Spectrum/Daylight - Emits all the wavelengths of visible light and closely approximates the visual effects of natural sunlight. Contains a blend of all the colors of the color spectrum. General-purpose lamp ideal for all types of [fresh](#) and [saltwater aquariums](#).

Actinic Light - Light emissions from actinic bulbs are predominantly from the blue end of the color spectrum. Produces photochemical reactions and simulate light conditions necessary for proper coral growth. These bulbs are ideal for [reef aquariums](#) and are best when used with a [timer](#) to recreate dawn and dusk lighting conditions.

Plant Lights - Emit light that stimulates plant growth with peak emissions in both the red and blue regions of the color spectrum to maximize photosynthetic activity. Ideal for [planted aquariums](#).

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How often should I replace fluorescent lamps and why?

Over time, the gas and coating within the fluorescent lamp degrade with use, changing both the intensity and spectrum of the light produced by the lamp. It is important that fluorescent lamps are changed on a regular basis (every 6 to 18 months depending on ballast type) since the diminished light output can encourage nuisance algae growth.

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