

The Effect of Using a Reflector upon the Output of a Fluorescent Tube

In the UK, many keepers use aquarium lighting controllers as fixtures for their fluorescent lights, which are then suspended inside the vivarium.

Test results over here are showing good UVB output from the aquarium fixtures, which are basically ballast boxes with cables leading to a pair of end caps.



Our tests have shown, however, that the effective output of these tubes can be greatly

increased by fitting a cheap aquarium reflector, or even making one from tinfoil. When this is installed in the vivarium, the lighting appears much improved... but what is the effect upon the UVB output?



Fig. 5 (below) shows the added UVB available to the vivarium occupants when a reflector is fitted. The example shown is a brand new Zoomed Iguana Light 5.0. The UVB meter is 2 inches from the tube (purely to make photographing the subject easier) and the readings are 141 uW/cm^2 (no reflector) and 272 uW/cm^2 (with reflector) respectively.



To measure the effect of adding a reflector in more detail, a series of tubes of different brands and ages were tested both with, and without a fitted reflector at a distance of 12" from the tube. (Table 1 and Figure 6.)

Table 1. The difference made to UVB Output by adding a reflector. Measurements are in $\mu\text{W}/\text{cm}^2$ at 12 inches.



Type of tube (Brand, length, and approx. time tube has been in use)	UVB with NO Reflector used	Added UVB with Reflector fitted	Total UVB with Reflector fitted
Zoomed 5.0 24" 30mins	24	24	48
Arcadia 5% 24" 6mths	20	16	36
Exoterra 8.0 24" 6mths	14	11	25
Exoterra 8.0 24" (2) 6mths	13	12	25
Exoterra 8.0 18" 6mths	7	5	12
Arcadia 5% 24" 12mths	15	8	23

Conclusion.

The reflector appears to gather a high percentage of the UVB light emitted from all rear surfaces of the tube and reflect it into a broad, forward-facing beam. This would therefore seem to be a very effective way of increasing the apparent output of a tube. Directly in front of the tube, **the UVB output is effectively doubled by the use of a reflector.**

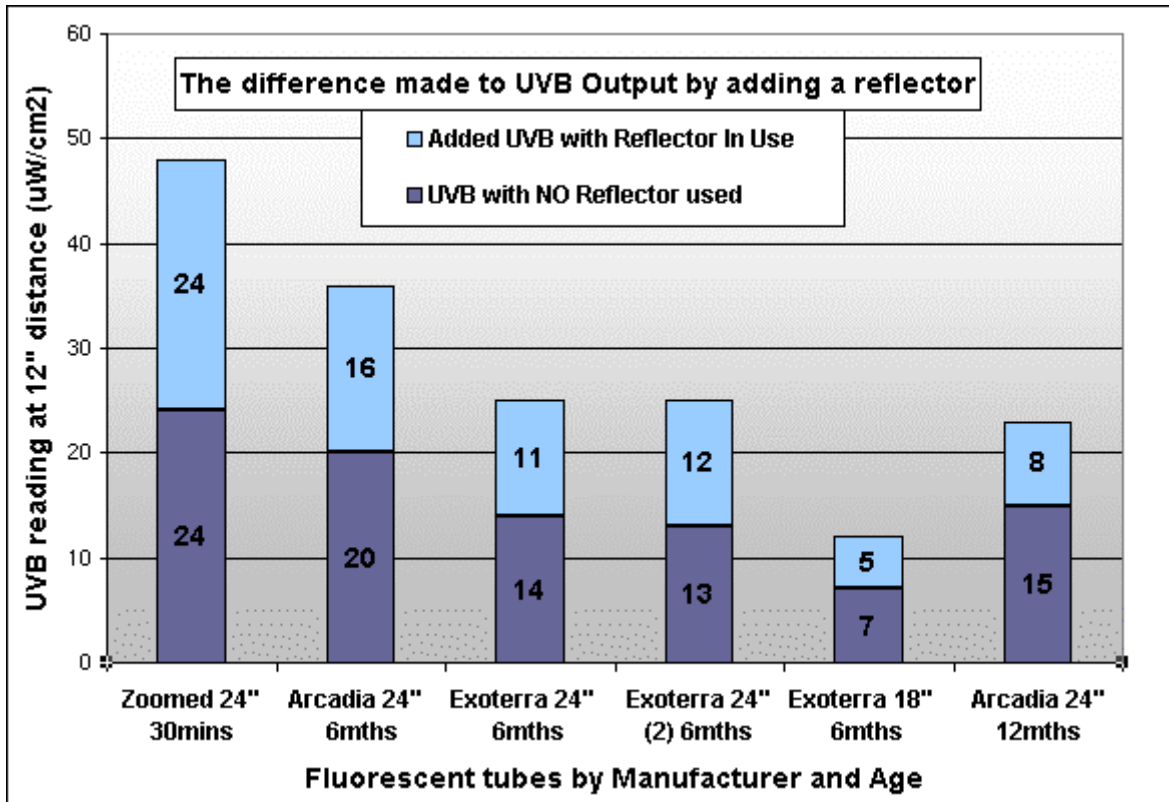


Fig. 6. The difference made to UVB Output by adding a reflector

Frances Baines (username lilacdragon)