

## Aquarium Heat & UVB setup

It is very challenging to set up the heating & lighting in an aquarium (or plastic tote) for a bearded dragon because they are poorly ventilated and most of the commercially available equipment does not provide the things your dragon needs.

Your dragon needs UVB to produce vitamin D which allows them to metabolize calcium just like us. Screen tops block 50% of the UVB while glass and plastic block 100% of the UVB. Additionally the available UVB is reduced by 50% for every inch that you move away from the bulb. With a tall aquarium and a screen top your dragon may not be actually be getting very much UVB at all. As UVB bulbs age their UVB output decreases so after a few months they may not be getting any UVB even if the bulb is still producing it. There are some high output UVB linear bulbs on the market that are designed to be placed on top of screens but the frequency of the UVB may not all be in the beneficial range and they may have other issues. Without sufficient UVB you can give your dragon all the calcium in the world but they will not be able to absorb it.

Bearded dragons live at room temperature but they also require a basking temp of 100F or higher to efficiently digest their food and absorb the nutrients. Babies like it as hot as 120F.

The compact fluorescent bulbs have multiple issues but the one that is most important in your situation is that it only provides a small area of UVB coverage, and not all of it is in the beneficial range. Additionally if it is on top of a screen then the screen is blocking 50% of the UVB. It also decreases 50% for every inch you move away from the bulb. Depending on how the UVB is set up they may not be getting much UVB at all. The dragon needs the UVB to make vitamin D so they can absorb the calcium. With so little UVB coverage they probably can't produce enough vitamin D to absorb all of the calcium you are giving them. I don't know what you are keeping them in but it would be a good idea to switch out the compact fluorescent bulb for a tubular fluorescent bulb. I only use the repti-sun 10.0. That would provide you a lot more coverage so they can get more UVB and produce more vitamin D. Using calcium with Vitamin D3 is not a substitute for proper UVB since most of the studies have shown that bearded dragons cannot metabolize the D# that they add to the vitamins and calcium.

If you are keeping them in an aquarium or some sort of a bin it would be easy to set up a UVB light. You can go to Walmart, Amazon, or Home Depot and buy an 18" under cabinet fluorescent fixture and 18" reptisun 10.0 UVB or Arcadia 12% bulbs. Remove the plastic cover since plastic & glass block 100% of the UVB. I drilled holes in the fixture but you could just wrap some stiff wire around the ends of the light so you can hang it over the side of the aquarium or bin or use Velcro tape to mount the light inside the enclosure. This puts it under the screen and moves it closer to the dragon so they can get a lot more UVB allowing them to produce more vitamin D and metabolize more calcium. Set the light so they can get 4"-10" inches away from the bulb. Bearded dragons can get sunburned so you need to make sure they can get away from the UVB if they want. If the bin/aquarium are longer than 18" then that's not a problem, but if it is smaller you could put in a cave, box, or bowl with openings cut into them to work as a cave.

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The other thing you want to think about is the basking temp. I don't know how old/big the dragon is but the adults need a basking temp of 100-110 degrees, and babies like it as hot as 120. The higher heat speeds up their metabolism allowing them to process foods and absorb nutrients much faster. The problem with aquariums & bins is that they are poorly ventilated so if you have the basking temp at an appropriate temp then it may not have an appropriate temp gradient (cool end). To provide the appropriate temp and maintain an appropriate gradient I have come up with this setup. Go to home depot or Lowes and get a "New Work Ceiling Box with Large Hanger Bar". Flatten the ends and bend them so they hook over the sides of the aquarium/bin and attach a "Keyless White Porcelain Lamp holder". I use an extension cord for the wiring so I can leave about 6" of wire from the side you plug things into so you can plug the fluorescent fixture into the basking fixture. I also sell these already made. This moves the light inside the enclosure and allows you to use a much lower wattage bulb to get the appropriate basking temp without heating the entire enclosure preserving the temp gradient. The basking bulb should be a 50W basking bulb or a 45W spot halogen bulb. Depending on the height of the aquarium/bin you may need a 75W basking bulb. Once they are able to move a little better you can raise the fluorescent fixture a little and place a branch (grapevine) under the basking spot and angle it up to within about 3" of the fluorescent bulb so the dragon can crawl closer to the uvb if they want.

