

UVB Bulb Selection Guide

How to pick a safe UVB bar setup using tested UVI charts (and avoid common mistakes)

This guide is meant to be both practical and safety-first oriented. In this sense its only focus is to teach you how to safely pick a UVB light for your specific snake (or any reptile really). UVB can be beneficial when done correctly, but UVB that's too strong (or too close) can cause burns and eye damage. When in doubt, go weaker, provide shade, and verify with the measured charts provided or a UV meter.

*All UVI charts are sourced from the [**"Reptile Lighting"**](#) group on Facebook. Anyone seriously interested in learning more about UVB and other proper lighting setups I highly recommend joining the group, reading the guides, & asking questions there to learn more than this very simple guide can provide.

My other guides can be found here: <https://darkcelbii.github.io/snake-guides/>

1) UVB vs UVI (what's the difference?)

UVB refers to a band of ultraviolet light (roughly 280–315 nm) produced by reptile UV bulbs. It's the *type* of light.

UVI (UV Index) is a *measurement* of how strong the active UV is at a specific spot in the enclosure (your basking surface, branch, hide top, etc.). UVI changes with distance and anything blocking the light (mesh tops, lamp guards). In all the charts you will see UVI being referenced rather than "UVB".

Simple way to think of it: UVB is the bulb type, UVI is the dose your snake actually receives at its basking spot.

2) Why UVB selection matters (and how burns can happen)

UVB isn't "one size fits all." The same bulb that can be safe in one enclosure can be dangerous in another because UV intensity changes with bulb strength percentage, fixtures reflector (i.e. putting an arcadia bulb in a zoo med fixture), enclosure/guard mesh blockage, and distance to the basking area. Burns (think sunburn for your snake) usually happen when one or more of these go wrong:

- UV Bulb is too strong for the snakes Ferguson zone (ex: a high % bulb meant for bearded dragons used for a snake – a very common occurrence).
- Snake can get closer than you planned (climbing branches, ledges, tall hides, background climbs).
- Mounting methods change the output (no guard vs guard, different mesh top patterns, different fixtures/reflectors).
- Using untested/unknown bulbs where real UVI output is not verified (common with cheap amazon no name UVB bulbs/fixtures).
- Random recommendations of "Just use a X% bulb it will be safe" UVB bulbs come in both low output and high output bulbs depending on the different brands. It's very easy to listen to some random advice from a random person on Facebook that is incorrectly using a UVB bulb and accidentally end up with a UVB Bulb that is way to strong designed for a reptile like a bearded dragon for instance. It happens more often than you would think. Another common thing that happens is someone in good faith will recommend a UVB bulb that may be appropriate for a Ferguson zone 2 snake when the snake in

question is a Ferguson zone 1 snake and requires significantly lower UVB output to prevent burns/overexposure. This is often not done with any malicious intent, but it can cause real harm to your snake, and it signifies the importance of being able to understand how to correctly pick a UVB bulb by yourself for your exact enclosure setup.

That being said however, with a lower output bulb like any of the Arcadia shadedweller line, or the Zoomed Reptisun 5.0, and to some extent depending on distances the Arcadia forest bulb 6%, it is harder to cause over exposure with them as long as they have some mesh blocking them and you have 4-10" of distance away from the bulb(very bulb dependent see charts at bottom). They are typically a safer recommendation without any extra enclosure information to inform your decision.

Rule of thumb: if you're unsure, it's generally safer to run no UVB temporarily than to run UVB that may be overpowered for the setup.

3) The Ferguson Zone

A **Ferguson Zone** is a guideline that groups reptiles by how much UV they naturally use in the wild (shade-dwellers vs sun-baskers). Each zone corresponds to a **target UVI range** you should aim to provide at the basking area. It's a simple way to choose a UVB setup that's **strong enough to be useful, but not so strong it risks overexposure or burns**. Here is a quick list of some common reptiles and their Ferguson zone + target UVI. If your snake is not on this list you can find its zone on google, check multiple sources to be sure.

Zone 1: UVI 0.6–1.4 - Green Tree Pythons, Amazon Tree Boas, Geckos

Zone 2: UVI 1.1–3.0 - Ball pythons, Corn snakes, most rat snakes, Carpet Python, Boa Constrictor, Kingsnake

Zone 3: UVI 2.9–7.4 – Mainly lizards and tortoises of various types.

Pretty decent Ferguson zone list.

<https://www.aquariumsystems.fr/Files/132025/201651909010766.pdf>

4) Mesh blockage, lamp guards, and why mounting matters.

Mesh and lamp guards reduce UVB output - but they do it unevenly depending on your enclosures very specific mesh pattern. That's why charts are grouped by estimated % blocked by mesh or the first box of every chart is with 0% blocked if you happen to be running a UVB light with no guard (not recommended)

- Top-of-mesh mounting: different enclosure brands can have very different mesh densities.
- Inside mounting: you should use a lamp guard so the snake can't crawl on the bulb or burn itself on the bulb/fixtures. Arcadia lamp guards are usually sold out but blackbox cages sells an equivalent guard.
- The "Reptile Lighting" group referenced at the start of this guide has ~50 different images of enclosure mesh and their blockage % under guide #1 in the group, if you need to figure out your mesh blockage that would be the place to start. Common enclosure blockages - Dubia V1 43%, Dubia V2&V3 33%, EcoFlex 35%, thrive honeycomb 60%, arcadia lamp guard 35%. Practical advice: if you can't find your exact mesh % in a chart, choose the closest group (i.e. 33% blockage = 35% group). Example of a mesh blockage photo.

Dubia.com vivarium screen - New wide mesh (2024)

Approx. 33% block

(group E)

Photo courtesy of Christina Kimmerer (2024)

Thrive standard mesh screen (as sold with vivarium)

Approx. 60% block

(group H)

Close-up photo courtesy of Quinn Harris (2021)



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4) The basic formula for choosing a UVB bulb

1. Pick your target UVI range based on Ferguson zone (what UVI your snake should have access to at the basking site).
2. Decide how the bulb will be mounted (on top of mesh vs inside with a lamp guard/no guard).
3. Estimate your blockage % (mesh top or guard) and choose the matching chart group.
4. Measure the distance from bulb to the basking surface (This may be the ground, the top of the hot side hide, some branches under your UV bulb, a ledge, etc etc. every enclosure is different)
5. Use the charts: at the distance and blockage group, read the UVI levels for the bulb/fixture combo.
6. Change bulb strength or basking height until the basking zone fits in your target UVI range.
7. Always provide shade and hides so the snake can fully self-regulate (UV gradient matters).
8. Place UVB so it covers only part of the enclosure (a “UV patch”), not the entire roof.

Important: distance is the #1 thing people underestimate

- Measure to the closest basking spot, not just ground level.
- In a 4×2×2, a climbing branch or top of a hide can put a snake much closer to the UVB than you expect.

5) How to read the charts (all charts I have are at the bottom of the guide)

The charts provided from the Reptile Lighting group all follow the same structure:

- Separate “groups” (boxes) for different blockage percentages (no mesh, 15%, ~35%, 45%, etc.).
- A distance column on the left (inches/cm from lamp to basking surface).
- UVI values in the table for specific bulb + fixture/reflector combinations.

A simple way to walk through it:

1. Find the chart for the exact bulb AND the exact fixture/reflector (the fixture matters usually sold in a set with the bulb) that you are looking at(or use the chart to find the correct bulb/fixture combo)
2. Choose the blockage group that matches your setup (mesh top or lamp guard).
3. Go to your measured distance row on the left hand column.
4. Read across to your bulb/fixture column and check the UVI.
5. If UVI is above the target: increase distance or pick a weaker bulb/fixture
6. If UVI is below the target: decrease distance or pick a stronger bulb/fixture

Under this chart we will run a scenario on how to pick the correct bulb for a ball python 6-8 inches away from its basking spot.

Ferguson Zone 2

UVI measurements for Arcadia T5HO 6% and 12% 24W or ZooMed T5HO Reptisun 5.0 and 10.0 24W UVB tubes in either Arcadia ProT5/Vivarium Electronics T5-HO fixtures or Zoomed T5-HO Reptisun Terrarium Hoods, measurements for Arcadia Shadedweller 7% 8W and 2.5% 12W in their respective fixtures as part of package at point of sale with calculations for eight different types of mesh screen according to the percent of light and UV blocked. Calculations done by Quinn Harris and Frances Baines using photographs courtesy of the members of the Reptile Lighting Facebook group. Tables modified by Abigail Sharma.

*Measurements for the Shadedweller range in Group C are calculated at 20% block and ranges for the T5HO lamps in Group C are measured at 25% block.

Ranges for Ferguson Zone 2 reptiles (e.g., Hognose snakes) UVI 2-3, highlighted in green

		Group A			No Mesh Block					Group B			15% Block					Group C			20-25% Block*		
Distance Inches	Distance cm	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood		
		2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO		
4	10	4	6.2	13.4	8.3	3.4	5.3	11.4	7.1	3.2	5	10.1	6.2	2.2	3.4	6.8	4.2	1.6	2.6	4.7	3		
6	15	3	4.2	9	5.6	2.6	3.6	7.7	4.8	2.4	3.4	6.8	4.2	1.7	2.7	5.3	3.4	1.1	1.8	3.5	2.3		
8	20	2	3.2	6.2	4	1.7	2.7	5.3	3.4	1.2	1.9	3.9	2.6	0.9	1.4	3.1	2	0.6	1	2.2	1.4		
10	25	1.4	2.2	4.6	3	1.2	1.9	3.9	2.6	0.6	1	2.5	1.6	0.5	0.9	2	1.3	0.5	0.8	1.7	1.1		
12	30	1	1.7	3.7	2.4	0.9	1.4	3.1	2	0.4	0.6	1.6	1.1	0.4	0.6	1.4	1	0.2	0.4	1.2	0.8		
14	35	0.7	1.2	2.9	1.9	0.6	1	2.5	1.6	0.3	0.4	1.2	0.9	0.3	0.5	1	0.6	0.2	0.3	0.7	0.5		
16	40	0.6	1	2.3	1.5	0.5	0.9	2	1.3	0.2	0.3	1.2	0.8	0.2	0.3	1	0.7	0.2	0.3	0.9	0.6		
18	45	0.5	0.7	1.9	1.3	0.4	0.6	1.6	1.1	0.2	0.3	1.4	0.9	0.2	0.3	1	0.7	0.2	0.3	0.9	0.6		
20	50	0.3	0.5	1.6	1.1	0.3	0.4	1.4	0.9	0.2	0.3	1	0.7	0.2	0.3	1	0.7	0.2	0.3	0.9	0.6		
		Group D			30% Block					Group E			35% Block					Group F			45% Block		
Distance Inches	Distance cm	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood		
		2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO		
4	10	2.8	4.3	9.4	5.8	2.6	4.1	8.7	5.4	2.2	3.4	7.4	4.6	1.7	2.3	5	3.1	1.1	1.8	3.4	2.2		
6	15	2.1	2.9	6.3	3.9	2	2.7	5.9	3.6	1.3	2.1	4	2.6	0.9	1.4	3	2	0.7	1.1	2.5	1.7		
8	20	1.4	2.2	4.3	2.8	1.3	2.1	4	2.6	0.9	1.4	3	2	0.7	1.1	2.4	1.6	0.5	0.8	1.6	1		
10	25	1	1.5	3.2	2	0.9	1.4	3	2	0.7	1.1	2.4	1.6	0.4	0.7	1.5	1	0.3	0.6	1.3	0.8		
12	30	0.7	1.2	2.6	1.7	0.7	1.1	2.4	1.6	0.3	0.5	1.9	1.2	0.2	0.3	1.2	0.8	0.2	0.3	1	0.7		
14	35	0.5	0.8	2	1.3	0.5	0.8	1.9	1	0.2	0.4	1.5	1	0.2	0.4	1	0.7	0.2	0.3	0.7	0.5		
16	40	0.4	0.7	1.6	1.1	0.4	0.6	1.3	0.8	0.2	0.4	0.8	0.5	0.2	0.2	0.7	0.5	0.2	0.2	0.6	0.4		
18	45	0.4	0.5	1.3	0.9	0.3	0.4	1	0.7	0.1	0.2	0.7	0.5	0.1	0.2	0.6	0.4	0.1	0.2	0.5	0.3		
		Group G			50% Block					Group H			65% Block					Group I			70% Block		
Distance Inches	Distance cm	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller		Arcadia Fixture	ZooMed Hood		
		2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO		
4	10	2	3.1	6.7	4.2	1.4	2.2	4.7	2.9	1.1	1.5	3.2	2	0.9	1.3	2.7	1.7	1.2	1.9	4	2.5		
6	15	1.5	2.1	4.5	2.8	0.7	1.1	2.2	1.4	0.7	1.1	2.2	1.4	0.5	0.8	1.6	1.1	0.4	0.7	1.4	0.9		
8	20	1	1.6	3.1	2	0.7	1.1	2.3	1.5	0.2	0.4	1	0.7	0.2	0.4	0.8	0.5	0.2	0.4	0.9	0.6		
10	25	0.7	1.1	2.3	1.5	0.4	0.6	1.5	1	0.2	0.4	0.8	0.5	0.2	0.2	0.7	0.5	0.2	0.3	0.7	0.5		
12	30	0.5	0.9	1.9	1.2	0.3	0.6	1.5	1	0.2	0.4	0.8	0.5	0.2	0.2	0.7	0.5	0.2	0.2	0.6	0.4		
14	35	0.4	0.6	1.5	1	0.2	0.4	1	0.7	0.1	0.2	0.5	0.3	0.2	0.2	0.7	0.5	0.2	0.2	0.5	0.3		
16	40	0.3	0.5	1.2	0.8	0.1	0.2	0.8	0.5	0.2	0.2	0.5	0.3	0.2	0.2	0.7	0.5	0.2	0.2	0.6	0.4		
18	45	0.3	0.4	1	0.7	0.1	0.2	0.7	0.5	0.1	0.2	0.5	0.3	0.1	0.2	0.6	0.4	0.1	0.2	0.5	0.3		
20	50	0.2	0.3	0.8	0.6	0.1	0.2	0.6	0.4	0.1	0.2	0.5	0.3	0.1	0.2	0.6	0.4	0.1	0.2	0.5	0.3		

Here is an example of how to read the chart. Say we have either a ball python/corn snake in a Dubia v2/v3 enclosure with 33% blockage, an ecoflex enclosure with 35% blockage, or a lamp guard with 35% blockage mounted inside a solid PVC enclosure. We know that based on our mesh blockage we want the very middle box in the chart that lists at 35% block. Let's assume that we have a climbing branch under our UVB light that is 6-8 inches away from the bulb(either the light sitting on top of our mesh top enclosure or mounted inside on solid pvc with the guard covering it). We can use the left-hand distance key on the chart to see that at 6-8 inches the Arcadia Shadedweller 7% SO-T5 bulb(second column in the box) provides us with 2.7-2.1 UVI in that range while accounting for our mesh blocking ~35% of the UVI output. This is perfect for our zone 2 corn snake or ball python. We can see with this bulb they still get some benefit the further they go from the bulb, but at diminishing returns, and that is okay. Your UVI does not have to be perfectly spot on either, but it's your money so it's best to spend an extra 30 minutes with the charts to find which one is the most optimal.

Below we will run the same scenario but the basking area is 10-12 inches away.

Ferguson Zone 2

UVI measurements for Arcadia T5HO 6% and 12% 24W or ZooMed T5HO Reptisun 5.0 and 10.0 24W UVB tubes in either Arcadia ProT5/Vivarium Electronics T5-HO fixtures or Zoomed T5-HO Reptisun Terrarium Hoods, measurements for Arcadia Shadedweller 7% 8W and 2.5% 12V in their respective fixtures as part of package at point of sale with calculations for eight different types of mesh screen according to the percent of light and UV blocked. Calculations done by Quinn Harris and Frances Baines using photographs courtesy of the members of the Reptile Lighting Facebook group. Tables modified by Abigail Sharma.

*Measurements for the Shadedweller range in Group C are calculated at 20% block and ranges for the T5HO lamps in Group C are measured at 25% block.

Ranges for Ferguson Zone 2 reptiles (e.g., Hognose snakes) UVI 2-3, highlighted in green

		Group A No Mesh Block				Group B 15% Block				Group C 20-25% Block*			
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood
Inches	cm	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO
4	10	4	6.2	13.4	8.3	3.4	5.3	11.4	7.1	3.2	5	10.1	6.2
6	15	3	4.2	9	5.6	2.6	3.6	7.7	4.8	2.4	3.4	6.8	4.2
8	20	3	3.2	6.2	4	1.7	2.7	5.3	3.4	1.6	2.6	4.7	3
10	25	1.4	2.2	4.6	3	1.2	1.9	3.9	2.6	1.1	1.8	3.5	2.3
12	30	1	1.7	3.7	2.4	0.9	1.4	3.1	2	0.8	1.4	2.8	1.8
14	35	0.7	1.2	2.9	1.9	0.6	1	2.5	1.6	0.6	1	2.2	1.4
16	40	0.6	1	2.3	1.5	0.5	0.9	2	1.3	0.5	0.8	1.7	1.1
18	45	0.5	0.7	1.9	1.3	0.4	0.6	1.6	1.1	0.4	0.6	1.4	1
20	50	0.3	0.5	1.6	1.1	0.3	0.4	1.4	0.9	0.2	0.4	1.2	0.8
		Group D 30% Block				Group E 35% Block				Group F 45% Block			
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood
Inches	cm	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO
4	10	2.8	4.3	9.4	5.8	2.6	4	8.7	5.4	2.2	3.4	7.4	4.6
6	15	2.1	2.9	6.3	3.9	2	2.7	5.9	3.6	1.7	2.3	5	3.1
8	20	1.4	2.2	4.3	2.8	1.3	2.1	4	2.6	1.1	1.8	3.4	2.2
10	25	1	1.5	3.2	2.1	0.9	1.4	3	2	0.6	1.2	2.5	1.7
12	30	0.7	1.2	2.6	1.7	0.7	1.1	2.4	1.6	0.6	0.9	2	1.3
14	35	0.5	0.8	2	1.3	0.5	0.8	1.9	1.2	0.4	0.7	1.6	1
16	40	0.4	0.7	1.6	1.1	0.4	0.7	1.5	1	0.3	0.6	1.3	0.8
18	45	0.4	0.5	1.3	0.9	0.3	0.5	1.2	0.8	0.3	0.4	1	0.7
20	50	0.2	0.4	1.1	0.8	0.2	0.3	1	0.7	0.2	0.3	0.9	0.6
		Group G 50% Block				Group H 65% Block				Group I 70% Block			
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood
Inches	cm	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO
4	10	3	3.1	6.7	4.2	1.4	2.2	4.7	2.9	1.2	1.9	4	2.5
6	15	1.5	2.1	4.5	2.8	1.1	1.5	3.2	2	0.9	1.3	2.7	1.7
8	20	1	1.6	3.1	2	0.7	1.1	2.2	1.4	0.6	1	1.9	1.2
10	25	0.7	1.1	2.3	1.5	0.5	0.8	1.6	1.1	0.4	0.7	1.4	0.9
12	30	0.5	0.9	1.9	1.2	0.2	0.4	1	0.7	0.2	0.3	0.9	0.6
14	35	0.4	0.6	1.5	1	0.2	0.4	0.8	0.5	0.2	0.3	0.7	0.5
16	40	0.3	0.5	1.2	0.8	0.2	0.4	0.7	0.5	0.2	0.2	0.6	0.4
18	45	0.3	0.4	1	0.7	0.2	0.2	0.7	0.5	0.1	0.2	0.5	0.3
20	50	0.2	0.3	0.8	0.6	0.1	0.2	0.6	0.4	0.1	0.2	0.5	0.3

Now running this exact same scenario but instead lets say our basking spot is 10-12 inches away the chart would read like this instead and you would want to pick the Arcadia 6% T5HO fixture & bulb.

However this is a considerably stronger bulb than the shadedweller 7% in the previous example.

What that means in practical terms is that you need to be more aware of your snakes behavior if it spends more time closer to it than in your designated 10-12 inches basking zone. If it somehow manages to hang out 4-6 inches away (UVI levels of 8.7-5.9 according to the chart) from this much stronger 6% higher output bulb then it risks a chance of getting UVB burns from over exposure. This is why knowing your snakes behavior and your enclosures layout is important in picking your correct UVB bulb. It is also why it is important to take into account any climbing opportunities in your basking area. Again if the snake just slithers by its not a big deal, the issue is if it is staying stationary in these over exposure zones for long periods of time.

7) If you cannot answer all of these questions you cannot safely pick a UVB bulb yet.

Ask these questions, in this order:

1. What species? (Determine Ferguson zone / target UVI range.)
2. Is the UVB sitting on top of mesh, or mounted inside behind a guard?
3. What mesh/guard blockage % are we working with?
4. How far is the closest basking/climbing surface from the bulb? (measure it accurately do not guess)
5. Which tested bulb/fixture combo fits that distance to land in target UVI?

If the answer to any of these is unknown, you don't have enough info to pick a UVB safely yet.

8) Maintenance and replacement

- Replace UVB bulbs on a schedule (many common T5 UVB kits are rated for ~12 months of usable UVB output). UVI output degrades overtime and UVB bulbs are considered consumables.
- Best practice (not practical for 99% of keepers): verify output with a UV meter (Solarmeter 6.5) at the basking surface after setup changes or to check bulb strength left. Only a SolarMeter 6.5R can check the current output of your UVB bulb but they cost \$250. Any cheaper generic UV meter you find on amazon etc will not work properly, do not waste your money. This is not required and just for someone where it makes financial sense if they have multiple bulbs to the lifespan left so they are not replacing bulbs that are still good or someone that just wants to deep dive in getting their UVB setup to 100% perfect.

Reference charts

The charts below are the tested data you want to base UVB choices on. They show how UVI changes with distance and blockage for specific bulb+fixture combinations.

Note: It is probably common to find that if you do not have any climbing opportunities in your basking area that you may find yourself having to pick stronger bulbs to compensate for that. My suggestion would be to give your snake more enrichment and experiment with ways you can make more climbing areas in your enclosure before worrying about getting a UVB bulb. You don't have to of course, but it's good for your snake to be able to climb rather than just having a plain enclosure with nothing but a hide on the ground.

Ferguson Zone 2

UVI measurements for Arcadia T5HO 6% and 12% 24W or ZooMed T5HO Reptisun 5.0 and 10.0 24W UVB tubes in either Arcadia ProT5/Vivarium Electronics T5-HO fixtures or Zoomed T5-HO Reptisun Terrarium Hoods, measurements for Arcadia Shadedweller 7% 8W and 2.5% 12W in their respective fixtures as part of package at point of sale with calculations for eight different types of mesh screen according to the percent of light and UV blocked. Calculations done by Quinn Harris and Frances Baines using photographs courtesy of the members of the Reptile Lighting Facebook group. Tables modified by Abigail Sharma.

*Measurements for the Shadedweller range in Group C are calculated at 20% block and ranges for the T5HO lamps in Group C are measured at 25% block.

Ranges for Ferguson Zone 2 reptiles (e.g., Hognose snakes) UVI 2-3, highlighted in green

		Group A			No Mesh Block					Group B			15% Block					Group C			20-25% Block*		
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	
Inches	cm																						
4	10	4	6.2	13.4	8.3				3.4	5.3	11.4	7.1				3.2	5	10.1	6.2				
6	15	3	4.2	9	5.6				2.6	3.6	7.7	4.8				2.4	3.4	6.8	4.2				
8	20	2	3.2	6.2	4				1.7	2.7	5.3	3.4				1.6	2.6	4.7	3				
10	25	1.4	2.2	4.6	3				1.2	1.9	3.9	2.6				1.1	1.8	3.5	2.0				
12	30	1	1.7	3.7	2.4				0.9	1.4	3.1	2				0.8	1.4	2.8	1.8				
14	35	0.7	1.2	2.9	1.9				0.6	1	2.5	1.6				0.6	1	2.2	1.4				
16	40	0.6	1	2.3	1.5				0.5	0.9	2	1.3				0.5	0.8	1.7	1.1				
18	45	0.5	0.7	1.9	1.3				0.4	0.6	1.6	1.1				0.4	0.6	1.4	1				
20	50	0.3	0.5	1.6	1.1				0.3	0.4	1.4	0.9				0.2	0.4	1.2	0.8				
		Group D			30% Block					Group E			35% Block					Group F			45% Block		
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	
Inches	cm																						
4	10	2.8	4.3	9.4	5.8				2.6	4	8.7	5.4				2.2	3.4	7.4	4.6				
6	15	2.1	2.9	6.3	3.9				2	2.7	5.9	3.6				1.7	2.3	5	3.1				
8	20	1.4	2.2	4.3	2.8				1.3	2.1	4	2.6				1.1	1.8	3.4	2.0				
10	25	1	1.5	3.2	2.1				0.9	1.4	3	2				0.8	1.2	2.6	1.7				
12	30	0.7	1.2	2.6	1.7				0.7	1.1	2.4	1.6				0.6	0.9	2	1.3				
14	35	0.5	0.8	2	1.3				0.5	0.8	1.9	1.2				0.4	0.7	1.6	1				
16	40	0.4	0.7	1.6	1.1				0.4	0.7	1.5	1				0.3	0.6	1.3	0.8				
18	45	0.4	0.5	1.3	0.9				0.3	0.5	1.2	0.8				0.3	0.4	1	0.7				
20	50	0.2	0.4	1.1	0.8				0.2	0.3	1	0.7				0.2	0.3	0.9	0.6				
		Group G			50% Block					Group H			65% Block					Group I			70% Block		
Distance	Distance	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	Arcadia Shadedweller	Arcadia Fixture	ZooMed Hood	2.5% SO-T5	7% SO-T5	6%/5.0 T5HO	6%/5.0 T5HO	
Inches	cm																						
4	10	2	3.1	6.7	4.2				1.4	2.2	4.7	2.8				1.2	1.9	4	2.6				
6	15	1.5	2.1	4.5	2.8				1.1	1.5	3.2	2				0.9	1.3	2.7	1.7				
8	20	1	1.6	3.1	2				0.7	1.1	2.2	1.4				0.6	1	1.9	1.2				
10	25	0.7	1.1	2.3	1.5				0.5	0.8	1.6	1.1				0.4	0.7	1.4	0.9				
12	30	0.5	0.9	1.9	1.2				0.4	0.6	1.3	0.8				0.3	0.5	1.1	0.7				
14	35	0.4	0.6	1.5	1				0.2	0.4	1	0.7				0.2	0.4	0.9	0.6				
16	40	0.3	0.5	1.2	0.8				0.2	0.4	0.8	0.5				0.2	0.3	0.7	0.5				
18	45	0.3	0.4	1	0.7				0.2	0.2	0.7	0.5				0.2	0.2	0.6	0.4				
20	50	0.2	0.3	0.8	0.6				0.1	0.2	0.6	0.4				0.1	0.2	0.5	0.3				

ZooMed Reptisun T5-HO 12" 15watt T5-HO tubes in ZooMed 12" T5-HO Hood with Reflector							
		Reflector Fixture with NO Mesh Screen		GROUP B		GROUP C	
Distance	Distance	GROUP A		15% block		25% block	
		12" ZooMed Hood	12" ZooMed Hood	12" ZooMed Hood	12" ZooMed Hood	12" ZooMed Hood	12" ZooMed Hood
ins	cm	5.0	10.0	5.0	10.0	5.0	10.0
4	10	8.0	12.6	6.8	10.7	6.0	9.5
6	15	4.8	8.2	4.1	7.0	3.6	6.2
8	20	3.0	5.5	2.6	4.7	2.3	4.1
10	25	2.1	4.5	1.8	3.8	1.6	3.4
12	30	1.5	3.3	1.3	2.8	1.1	2.5
Range for UVI 3-5 (Ferguson Zone 3 - Sun baskers)		6-8 ins	10-12 ins	6 ins	8-10 ins	6 ins	8-10 ins
		15-20cm	25-30 cm	15 cm	20-25 cm	15 cm	20-25 cm
		not ideal	good range	not ideal	acceptable	not ideal	acceptable
		GROUP D		GROUP E		GROUP F	
		30% block		35% block		45% block	
Distance	Distance	12" ZooMed Hood		12" ZooMed Hood		12" ZooMed Hood	
ins	cm	5.0	10.0	5.0	10.0	5.0	10.0
4	10	5.6	8.8	5.2	8.2	4.4	6.9
6	15	3.4	5.7	3.1	5.3	2.6	4.5
8	20	2.1	3.9	2.0	3.6	1.7	3.0
10	25	1.5	3.2	1.4	2.9	1.2	2.5
12	30	1.1	2.3	1.0	2.1	0.8	1.8
Range for UVI 3-5 (Ferguson Zone 3 - Sun baskers)		6 ins	8-10 ins	6 ins	6-8 ins	6-8 ins	6-8 ins
		15 cm	20-25 cm	15 cm	15-20cm	15-20cm	15-20cm
		not ideal	acceptable	not ideal	not ideal	not suitable	not ideal
		GROUP G		GROUP H		GROUP I	
		50% block		65% block		70% block	
Distance	Distance	12" ZooMed Hood		12" ZooMed Hood		12" ZooMed Hood	
ins	cm	5.0	10.0	5.0	10.0	5.0	10.0
4	10	4.0	6.3	2.8	4.4	2.4	3.8
6	15	2.4	4.1	1.7	2.9	1.4	2.5
8	20	1.5	2.8	1.1	1.9	0.9	1.7
10	25	1.1	2.3	0.7	1.6	0.6	1.4
12	30	0.8	1.7	0.5	1.2	0.5	1.0
Range for UVI 3-5 (Ferguson Zone 3 - Sun baskers)		6 ins					
		15 cm					
		not suitable	not ideal	not suitable	not suitable	not suitable	not suitable

5) Coils/vertical UVB bulbs / Cheap no name Amazon UVB bulbs

Avoid untested UVB products (cheap LED UVB) & Coil UV bulbs.

UVB can cause real harm if it's too strong, too concentrated, or inconsistent. That's why I recommend

sticking to only brand name setups (Arcadia / Zoo Med, etc.) that have **reliable measured data** (UVI charts) so you can choose a safe tested bulb that won't cause harm to your snake.

- **Coil/compact UVB bulbs** are generally not recommended because they tend to create a small, intense "hot spot" of UV, have a very very limited usable zone, and often lack any distance/UVI data. They are basically worthless for our use.
- **Cheap "Chinese" LED UVB bars/fixtures** (or random UVB brands with no independent testing) are a bigger gamble: output can be **unknown, uneven, or change quickly**, and there usually isn't solid, repeatable UVI testing to build a safe setup around them. Some can cause serious harm to your snake.

Rule of thumb: If you can't find trustworthy UVI distance data for the exact bulb/fixture, it's safer to **skip UVB temporarily and save for a proven setup** than to guess and risk overexposure.

Guide credit: DarkCelbii

Link to all guides

<https://darkcelbii.github.io/snake-guides/>

Thermostat Comparison Guide

<https://darkcelbii.github.io/snake-guides/ThermostatComparisonGuide.pdf>

Radiant Heat Panel Comparison Guide

<https://darkcelbii.github.io/snake-guides/RadiantHeatPanelGuide.pdf>

My rhino ratsnake basking about 3-4" away from his 22" long Arcadia shadedweller-MAX 2.5% bulb, which from the charts we know provides him roughly ~3-2.6UVI.



		Arcadia ShadeDweller Range Group E (35% Block)		
Distance		ShadeDweller-Arboeal	ShadeDweller-Max	ShadeDweller
inch	cm	2.4% SO-T5	2.5% SO-T5	7% SO-T5
4	10	1.1	2.6	4.0
6	15	0.7	2.0	2.7
8	20	0.4	1.3	2.1