

REPTILE LIGHT AND HEATING OPTIONS

There are a vast number of options available for heating and lighting for reptiles. The following is not an exhaustive list but hopes to clarify any confusion between the different types and what they do. Sunlight is very important for all species of reptiles. It provides:

- **Heat** – composed of infrared radiation
- **Light** – composed of visible light and Ultra Violet Light (UV)

Heat is necessary to warm a reptile's body to its preferred temperature at which the reptile's metabolic functions are performing at optimum. Too hot and they get heat stressed, too cold and their ability to move, to digest food, perform vital functions such as fight infection etc. is compromised.

Heating options

A reptile's environment can be heated in many different ways but the key is providing a thermal gradient and a full spectrum of infra-red radiation so that a reptile is able to regulate their own temperature. Heat sources can be divided into those that emit shortwave radiation (near-infrared) and longer wave radiation (far-infra red). To us this feels like the difference between the warmth we feel when sitting in a beach in direct sunlight at 30°C and the warmth we feel when sitting in a room heated by radiators to 30°C. Both feel warm but in the first case, the heat penetrates deeper into our skin. In the wild, some reptiles will receive their heat by directly basking whereas others will heat up by sitting on warm surfaces once the sun has gone down, so the best heating option for your set up will depend on your species' natural lifestyle.

Examples of heat sources that emit "Near-infrared" include halogen light bulbs whereas heat sources that emit "Far-infrared" include ceramic heat emitters, heat projectors and heat mats.

Halogen light bulbs, basking lamps or full spectrum lamps come in all sorts of varieties and colours; red, blue, black etc. We do not recommend the coloured artificial looking heat lamps as the colours serve no purpose for the reptile and may cause stress.



Ceramic heat emitters provide heat only, no light. They are cheap, do not need changing regularly and last a long time. The main advantage of these is that they can provide supplemental heat in the night time when having a 'light' on would disrupt your reptiles sleeping patterns. There is no difference between the black and white ceramics in relation to output. They can be used in conjunction with a halogen light bulb and UVA/UVB light for a full spectrum of heat + UVB and come in different wattages. The higher the wattage the more heat output. If you have a large open area to heat such as a tortoise table or large vivarium then get a higher wattage but no matter what wattage you are using you will need to measure the temperature with a maximum minimum digital thermometer and adjust your heating accordingly.



Light - providing a normal photoperiod of light for the species is essential even for nocturnal reptiles to replicate their normal environment. Many light bulbs are available for reptiles, all of which emit visible light (which we can see) but animals also require **UV light** (both UVA and UVB). UV light is not visible to humans but is visible to many other species including reptiles, birds and insects. UVA is found in some normal household lights and in full spectrum lights and is used to help animals see colours, shapes and patterns. This helps them identify males and females of their species in the wild and is used to make the lighting in vivariums more natural looking.

UVB is NOT found in household or full spectrum lights and needs to be provided as a separate UVB lamp. UVB light is important for Vitamin D and calcium metabolism in many animals and helps prevent many health problems such as metabolic bone disease. UVB is filtered out by glass and plastics so is not present in sunlight coming through a glass window or vivarium glass.

Lamps producing UVB light usually also emit visible light which we can see. The visible light may look bright but the UVB will grow weaker with time and the lamp will need changing. Because we cannot see UVB, the only way to tell if a lamp is emitting UVB light is to measure it – this can be done with a small, handheld UVB reader. If you do not have one of these, then replace your lamps regularly. Follow the manufacturer's advice on how far away the lamp needs to be from the reptile and how frequently it needs changing.

Traditional UV Lights

These come in several varieties – always check whether bulbs just emit UVA or also include UVB:

Strip lights which look like fluorescent lights and can provide UV light over a large area



And compact bulbs which usually only provide UV light over a small area



They will also have different percentages such as 2%, 5%, 10%, 12% which relates to the light's output - although there are many things which influence this. The output needed depends on the species. Lower percentage for animals which live in rainforests or only come out at dawn and dusk and higher percentages for animals who bask a lot.

All UVB lights will slowly produce less UV over time. Some need changing every 3 – 6 months and some every 6 – 12 months. The decision to change the lamp must be based on the manufacturer's guidelines unless you have a UVB reader to test for yourself. In the hospital we prefer to use Arcadia and ZooMed brands as we find them very reliable and they do not need changing as frequently as some of the other varieties. All UVB lamps work better with a reflector to direct the light towards the reptile (see below)



UVB-LED lamps

These bulbs are increasing in popularity due to changes in EU legislation limiting the production of fluorescent bulbs in future. However initial studies of UVB-LED lamps found that some emit UV wavelengths not found in natural sunlight which could potentially cause health issues for reptiles, so although they are likely to be a very useful alternative in future, further research is needed before we can advise on the best options.

Combined UV and Heat Lamps

Some lamps emit heat *and* UVB light. Examples of these are Mercury vapour lamps and metal halide lamps. These also come in different wattages but also need a reflector to work well. The main advantages are that reptiles don't have to choose between sitting under heat or light but receive both at the same time as they would from sunlight in the wild. The good quality ones will last 12 months before needing replacing (the UV B output will wane just like any UV light). However they cannot be dimmed or put on a thermostat, may not provide a natural spectrum of UV light and often result in quite a narrow basking area so if used, should be combined with other sources of heat and UV for more extended coverage over a larger enclosure.



The different wattage lamps emit more (160w) or less (80w) heat and need to be chosen based on the size of the area you are heating and measurements of the temperature within that environment taken at both the hot and cold ends of the enclosure.



Other useful pieces of equipment include a lamp stand which is good for suspending lamps over tortoise tables etc and a maximum, minimum digital thermometer which is essential to know what your lowest and highest temperatures are at all times of day and night.