



APEX
CASES

EVERYTHING YOU
NEED TO KNOW
ABOUT PVC
ENCLOSURES

HELLO FRIEND!

For the longest time, the most popular way to house your cold blooded friends has been in a combination of glass and wood. These are still widely popular, widely available and a great option in a lot of scenarios.

You may have noticed that “PVC” enclosures are now growing to be a very popular choice of material for reptile enclosures, with good reason.

“PVC” stands for Polyvinyl Chloride and it’s the **world’s third most widely produced** synthetic plastic.

We’ve been working with this material for many years and we’ve seen it in thousands of different applications. This plastic comes in all kinds of shapes, sizes and formulations. It is all around you!

This e-book is designed to educate you about PVC enclosures, so when the time comes to get your companion a forever home, you are better equipped to make a decision about which enclosure is the right fit for you!

Let’s dive right in!

APEX CAGES

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WHY PVC?

Strength, Versatility & Resistance to Elements

“PVC” stands for Polyvinyl Chloride and it’s the world’s **third most widely produced synthetic plastic**. Not all “PVC” is made the same; it comes in different finishes, formulations and curing techniques. Apex Cages uses expanded polyvinyl chloride sheets (which is what we mean when we refer to PVC from here on in).

This specific material formula has a few key properties that make it a great choice of material for a reptile enclosure!

- **Plastics flammability standard rating of UL-94.** This means that even an open flame will not set it on fire.
- **Closed cell structure.** There are millions of small pockets of air in the material, which are enclosed in a solid shell and are not connected to other pockets of air. Think of an open cell structure as something like a dishwashing sponge, it absorbs water and is a lot more flexible. **To put it simply, the PVC won’t get wet, rot, mold, or deteriorate when exposed to moisture and humidity.**
- **Non-toxic ingredients.** Free of lead, barium, zinc and cadmium. When disposed of properly, PVC is recyclable!
- **PVC is FDA approved for use in food-contact applications, and has been for years.** Along with other government organizations, PVC has been approved for safety for many years and is used in everything ranging from toys to food packaging.
- **Resistant to many chemicals and solvents.** This makes it **super easy to clean and disinfect often, without damaging or deteriorating the material.**
- **Insulating.** Due to the closed cell structure of millions of air pockets and the chemical composition, it does not transfer heat well. **The little locked bubbles inside the material act like your insulated coffee mug and keep the heat and humidity in.**
- **Lightweight.** A full sheet of 1/2” thick PVC weighs about 43 lb, whereas a 3/4” sheet of melamine, this is the thickness most often used when building enclosures, weighs about 98 lb. So a melamine enclosure usually weighs more than double.

DOORS: ACRYLIC OR POLYCARB

What's the difference?

When you're looking for a PVC enclosure, it is important to make sure you pick one with the correct door for you and your pet. The 3 common materials used for the doors that you may have seen floating around are acrylic, polycarbonate and glass. Polycarbonate and acrylic are not the same thing, so let's go over the main significant differences you need to keep in mind:

- Acrylic does scratch, but **can be polished** to renew its clarity and fill in minor to medium scratches.
- Polycarbonate scratches easier than acrylic, it is a softer plastic, and **cannot be polished**.
- Acrylic is 17 times **stronger than glass** in terms of impact resistance and is **more rigid** than polycarbonate.
- Polycarbonate is 250 times stronger than glass in terms of impact resistance, but is a **soft plastic** so it is **not as rigid as acrylic** and bends a lot easier, especially with added heat.
- Acrylic is often used in zoos for enclosures and aquariums and often a replacement for glass.
- Polycarbonate application is more industrial, such as roofing panels and bullet-resistant windows, with the right type of polycarbonate.
- Acrylic has a **higher resistance to temperature than polycarbonate before it begins to warp** or become malleable, but acrylic is **flammable** when directly in contact with an **open flame**.
- Polycarbonate is **non-flammable**, but even warmer room temperatures make the material more **soft & malleable**.

Make sure you check with the manufacturer if the enclosure you are getting has acrylic or polycarbonate doors since these terms are often used interchangeably.

CLEANING YOUR ENCLOSURE

Proper PVC and Acrylic Care

General PVC Enclosure Care:

- PVC can be cleaned over and over.
- The best way to clean PVC is with a mild soap and water.
- Remember to only use pet-safe soap and cleaners.
- To prolong the life of your enclosure, make sure the enclosure sits on a hard and flat surface; big enough to support it.
- Oftentimes, you will need to air out your PVC enclosure when you first purchase it. The brand new plastic can have a smell, think of it as a new car smell.
- Unlike with melamine enclosures, you don't have to worry about internal water damage even if the surface of your cage is damaged.

Acrylic & Polycarbonate Cleaning:

- **Do not clean with any acetone, alcohol or chemical based cleaners.** Stay away from household cleaners to be safe.
- Remove dust with a light duster, blow it off, or lightly stroke off with a lint free cloth.
- Microfibre cloths work great to remove dust, but add static to the plastic.
- Use mild soap and water with a lint free cloth to wipe it down.
- Gently dry with a lint free cloth, don't scrub or you may scratch it.

Tip: Our favorite professional plastic cleaner is "NOVUS#1". It polishes, improves clarity and removes static. You can use it as often as you'd like with a lint free cloth and a little goes a long way with this cleaner!

POLISHING ACRYLIC DOORS

Remove Cloudiness and Minor to Medium Scratches

As mentioned earlier, **acrylic** can be polished to remove cloudiness and minor to medium scratches. It does require some effort, it isn't as easy as just wiping it down, but it is **definitely worth doing because the difference is sometimes staggering!**

The process seems long, but **this is a full deep clean and renewal, you don't have to do this for your day to day cleans.**

What you will need:

- NOVUS Plastic Polish System (Includes NOVUS #1, #2, #3) We recommend buying a NOVUS starter kit with all 3 formulas, then buying refills in bulk if you need them.
- Polishing or Cotton Cloths (Soft and lint free)

Instructions:

1. Spray NOVUS#1 Plastic Clean & Shine on your acrylic and wipe down gently with lint free cloth. (Removes dust, dirt and static)
2. Apply small amount of NOVUS#3 Heavy Scratch Remover and rub the polish into the surface with a clean cloth. Rub this formula in streaks in direction opposite to the scratches. You will have some haze left after, that's normal. You can repeat this step until you don't see anymore of the scratches.
3. Wipe down the material to remove NOVUS#3 well, make sure there's no residue.
5. Spray NOVUS#1 again and wipe down with a clean cloth to remove all of NOVUS#3.
6. Apply small amount of NOVUS#2 Fine Scratch Remover and use a new clean cloth to polish the material, this time polish in a circular motion (Do not use the cloth you just used to apply NOVUS#3)
7. Leave the NOVUS#2 on the acrylic to dry, once it is dry you can buff it out with a dry cloth.
8. To polish the final haze, spray and wipe the acrylic down with NOVUS#1 again.
9. Your acrylic is good as new!

Tip: If you get detachable doors on your enclosure it will make it easier to polish when the time comes!

PVC ENCLOSURE ASSEMBLY

The Options Available To You

Enclosures come either fully assembled, fully assembled and sealed, or flat packed for you to assemble.

Fully Assembled Enclosures:

- Fully assembled enclosures may come sealed or not sealed. Make sure to find out if the enclosure will be sealed and the sealant used.
- These are great since usually all you need to do is put in your light bulbs and start decorating.
- You can easily seal enclosures at home with pet-safe silicone to make them waterproof.
- Shipping a larger fully assembled enclosure usually means freight shipping and higher shipping costs.
- Make sure that if you're shipping freight you check if there is a lift gate option. Lift gate means the driver will lower the package from the truck onto the ground via the lift gate. Otherwise you need to be able to get the package off the truck yourself. (Usually with a forklift)
- Depending on whether they are fused or screwed together, there may or may not be a removable top, sometimes the top is part of the structure in a way that it cannot be removed at all. This means your heat and light sources are permanently set up. If you ever want to change it you will need to drill a hole big enough to fit a plug through it and then cover it with a hole cover. Alternatively you can drill a wire hole, cut your lamp wire and rewire it after you've put it through your wire hole.

Common Flat Packed Method:

- Flat-Packed enclosures are similar to furniture you get at IKEA. They're a great way to save on shipping costs, although bigger sizes may still need to be freight shipped.
- You will benefit if someone is there to help you, since lining up the sides and putting the screws in while trying to hold the sides up straight can get frustrating. There may or may not be pre-drilled locators, but generally it is up to you to line the sides up and keep them straight as you screw it together.
- Usually all you need is a Phillips screw driver, but a drill helps speed things up.

Note: A removable top is beneficial in the long run and highly recommended to look for. This will ensure that if your lights and heat ever need to be **moved, changed or repaired** you can easily do it yourself without disassembling the whole cage or cutting wires.

△PEX CAGE ASSEMBLY

We're a Little Different

Although **most of the information in this e-book applies to all and any PVC enclosure**, we did want to share with you the things that make an Apex Cage special and easier to deal with.

Flat Packed Apex Cages:

- All standard sizes ship UPS Ground so you don't have to worry about freight shipping, even with the larger sizes.
- **The whole enclosure will snap fit together without any screws first**, no lining up sides and no need for extra hands to hold the sides up. It's like puzzle pieces that fit together!
- It is easy to put together alone, even if you're not usually a fan of IKEA furniture.
- Once the enclosure is snapped together the screws go in with a Phillips screwdriver or drill, to fully secure it.
- The top will remain removable, once screws are removed, without the need to take apart any other part of the enclosure.
- You can expand your Apex Cage at any point with an expansion kit. Either vertically or horizontally, you can combine all the standard Apex Cages together. We even have a corner unit to combine Apex Cages into an L shape.

HEAT AND LIGHT SET-UP

Hear Us Out

With many cage manufacturers, when you buy your enclosure you have the option to pick your heat and light add-ons. In many cases it is very convenient to have it done for you, for the extra cost.

Unfortunately, **this does limit your placement as well as the products you can use in it.**

Apex Cages feels a little differently about this so we don't have this option, and you can read more on why we took that route on our website, [here](#).

The main and most important reason is for the **convenience and comfort of both you and your pet.**

We believe that the enclosure needs to be able to accommodate to each pet's (and owner's!) needs.

This is why we give you the tools to easily (**really easily**) do your own heat and light set up.

There are so many products out there to choose from, the options are endless. We believe you should have the option to pick the one best for your pet, your budget and your home (both the product and the placement). We have our recommendations, but the final say gets to be yours and your pet's, and we give you the foundation to do it easily!

The top lid of our enclosure is removable, lies flat on the ground for easy installation of heat and light, just tape onto or screw into the material! There are 4 wire exit holes so you can place your wires where they need to be, coming out the back or the side of the left or right side of the enclosure.

With that in mind, we do have some recommendations and tips for setting up heating and lighting to make sure your pet is happy in your PVC enclosure and to make sure the enclosure lasts a long time!

HEAT AND LIGHT SET-UP

- **Under Tank Heating:** Apex Cages is highly against using Under Tank Heat (UTH) **with any PVC enclosures.** (Again, we like UTH, just not with PVC!) **The PVC material is specifically made to not transfer heat well,** as we mentioned earlier. This means that you need more heat and power to get through it. Heat pads and under tank heat were all designed for **glass enclosures** and it works very well with the glass enclosures! **PVC enclosures are not designed for this,** and there are many other available methods for belly heat and heating the enclosure that are much safer!
- **Overall Heat: Radiant Heat Panels** are the safest way to get overall heat inside the enclosure. There are a few brands out there and the size depends on which size enclosure you get.
- **Basking spots:** Can be easily made and many lamps or bulb holders can be easily directly attached to the top lid of the enclosure or placed on a screen top.
 - **IMPORTANT:** If you do not have a basking rock underneath the basking lamp, it is recommended to **place a tile underneath the lamp** so the lamp does not directly heat the substrate or the PVC. This will also help in retaining the heat like the rocks do **naturally** in the wild, and provide better belly heat.
- There are **heat lamps that do not emit light**, usually called Deep Heat Projectors, which are perfect for basking spots day and night!
- A **taller enclosure is always better** if you know you need a basking spot. You want the basking spot higher up so you can **build a slope upwards towards the heat** so your animal can regulate how close they want to get.
- If you have climbers, make sure to get **protective screens** for internal basking lamps.
- There are **4 wire holes in an Apex Cage** that allow you to put your heat lamp wires exactly where you want them.
- **Lighting:** Lights should be in a ceramic holder before attaching it to the PVC.
- LEDs can simply be taped or screwed in (if applicable) into the top lid of the enclosure.
- Fluorescent bulb holders screw into the lid with ease.
- There are **4 wire holes in an Apex Cage** that allow you to put your lighting wires exactly where you want them.

Remember: Heating pads and Under Tank Heating pads were created for glass enclosures, not PVC. Do not place heating pads inside the enclosure. **Never use heating pads to regulate the overall temperature of the enclosure, use an appropriate heat lamp.** Keep your pets happy and safe!

TIPS FOR BUILDING WITH PVC:

Build a Hide or Even a Cage

If you are good with tools, you can always build a PVC enclosure yourself! There are many available plans online for different enclosure types. Remember, you can use a wood enclosure plan too since the PVC is a good replacement for wood!

- Make sure to get the correct material, you need expanded PVC, 1/2" thick at least. Look for a local plastic supplier and borrow a friend with a pick up truck to save money on delivery!
- Some suppliers can cut the material to size for an extra cost, but **make sure you work out your numbers correctly before you get it cut to size.**
- If ordering full sheets of material, make sure you have the space since they can get big!
- Make sure you order enough material. Even if you use the material efficiently and don't make mistakes, it adds up quickly.
- If you can, get the acrylic cut to size and the holes drilled for you, or get some practice pieces. Acrylic can be hard to cut and full sheets get expensive. You can easily ruin a whole sheet if you drill into it at the wrong setting, so do your research!
- If you don't want to work with acrylic, check your local glass dealer for some glass panels to make a sliding door. You can find tracks for the sliding door at your local hardware store.
- Coarse thread drywall screws work very well to put the PVC together.

Building your own enclosure can be a very rewarding and learning experience, but make sure to do your research first! If you are planning on building with PVC, it is usually better to build more than one so you can buy your material in bulk, but if this is your first time building we recommend a practice run or taking some time to play around with the material!

Idea: Think outside the box! Build a small hide first to get a feel for the material!

CONCLUSIONS

THANK YOU!

We're so glad you stopped by and decided to learn about PVC caging!

Whether you want an Apex Cage to be your little (or big) friend's forever home, or you just wanted to learn more about the benefits of PVC enclosures, we're glad to see you! Hopefully we taught you something new today.

In case you weren't already a raving fan of PVC enclosures, here's a recap:

- **PVC is FDA approved for use in food-contact applications, and has been for years.**
- Acrylic is a lot easier to maintain than polycarbonate, since it can be polished to renew clarity.
- **PVC insulates really well**, keeping the heat and humidity where it needs to be and giving you better control over your pet's environment.
- **PVC lasts an extremely long time.** It is waterproof inside and out so you can clean it repeatedly and it will never rot like wood.
- **External under tank heating doesn't work safely with PVC since PVC does not transfer heat, so you need more power and heat to get through the PVC. Safety hazard!**
- **Basking spots can easily be created** with a ceramic tile or a rock under a heat lamp. The ceramic tile or rock will protect your PVC from direct heat and make it **last longer**.
- Apex Cages has the original, first-of-its-kind, **easiest ever assembly** for PVC enclosures (we're not kidding...it's **crazy simple**)

If you want to know more, have any suggestions or concerns, or just want to say hello, please don't hesitate to reach out! Your critters may sometimes bite, but we don't!

We love getting to know you :)

Please keep in mind: We are all learning every single day, so please let us know if we need to make corrections to our e-book or our methods. We are constantly working on improving ourselves to benefit you and your animals!

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