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Vane Adhesion: Tips, Tricks, and Troubleshooting Part 1

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Part 1: intro and types of adhesive

I can't count the times I've heard "I really like these vanes but I can't seem to get them to stick." The simple truth is, if your vanes aren't staying on the shaft it is due to the fact that your vanes or shaft aren't clean. This is true with all vanes, assuming that your glue isn't faulty. Remember you don't have to be a scientist or engineer to fletch an arrow. In this article I've included many ideas my Dad or I have used over the years to make fletching easier. Being a vane manufacturer we've heard many questions about how to make the vane stick to the shaft. Making your fletching adhere to the shaft is simple. You'll see.

For all of us the goal is the same: get the fletching job done quickly and properly so the vanes stay on. This is possible. In this article we will discuss different techniques for getting those pesky vanes to stick, and stick well, all while doing so quickly. I'll also include a few trouble shooting techniques to help solve some adhesion problems.

Fletching Your Own Shafts

Most archers I know who fletch their own arrows do so for one reason. They feel that if you want something done right you have to do it yourself. I don't mean to imply that your local shop doesn't do a good job or even a great job but, the fact remains, you will have more control over the finished product if you do it yourself. By fletching your own arrows you also have the opportunity to experiment with different styles and helical degrees.

Many vane manufacturers now boast a "no cleaning necessary" vane base. However there are still plenty of archers who prefer to clean it anyway, mostly because they just don't trust the "activator" the maker applies to the vane base. I don't blame them. Here are the tools necessary for a good fletching job.

- My solvent of choice is Acetone. My reason for this is, it evaporates quickly and allows me to get right to the task at hand. Use with adequate ventilation. Other acceptable solvents include: denatured alcohol, lacquer thinner, MEK, wood alcohol and isopropyl alcohol. Be sure your solvent is clean.
- A clean cotton rag. This is very important. Clean, Clean, Clean. I cannot stress this enough. If your rag is dirty, some of the impurities will transfer from the rag to the surfaces you are trying to clean, rendering your hard work futile.
- Fletching jigs. Many are available, including: The Bitzenburger, (pictured) Jo-Jan, Arizona E-Z Fletch, BPE, Grayling, and many others.
- Adhesive(s) we will be using Flex-Bond, our adhesive of choice for the past 20 years, and Fast Fletch, our newest adhesive, in the quick set category.

Types and brands of fletching jigs

Choice of adhesive

There are two different types of glue that can be used when fletching, the solvent-based glues like Flex-Bond or Fletch-Tite, or the type that use cyanoacrylate (C₅H₅NO₂) as the bonding agent such as Fast Fletch or Goat Tuff.

In the former, the adhesive finding it's way into the microscopic crevices in both the shaft and the vane makes the bond after the solvent has evaporated. The latter, Cyanoacrylate, is an acrylic resin that cures very quickly. The only trigger it needs is the hydroxyl ions in water. This is very convenient since almost everything contains at least trace amounts of moisture.

The two types of adhesives, the pros, and cons

Solvent based glue

Con: With the standard solvent based adhesives the biggest drawback is time. It takes much longer for the row to be usable after fletching. The wait time should be at least overnight.

Pro: However, the properly prepared bond will be more durable and less prone to failure due to weather than that of cyanoacrylate glue. When using Flex-Bond adhesive from Flex-Fletch Products,



CA based glue

Con: Cyanoacrylate glue is more susceptible to variances in surroundings such as heat, cold, and humidity. While strong, cyanoacrylate adhesives are also brittle, and these variances in weather make them more so. A friend of mine Woody Sanford of Magnus Broadheads hunts in the interior of Alaska where it is not uncommon to experience +90 to -20 to -30-degree temperatures while hunting. Up there, he wouldn't think of using a cyanoacrylate based adhesive because he knows it won't hold up in that kind of temperature extreme.

Con: Can be difficult to remove the old CA from the shaft when re-fletching. Damage to the shaft can result, be careful. Never use a carbon shaft that has been damaged even slightly.

Pro: CA glues set quickly and allow for quick arrow making and fast field repair. Both types of glue can be prey to over gluing.

Too much glue will lengthen cure times. Be thoughtful when choosing your glue. Think and plan ahead. If you think you may experience any weather related extremes it may be best to choose non-CA type glue such as Flex-Bond.



A brief word about Super Glue.

Cyanoacrylate (C₅H₅NO₂, for you chemistry buffs).

Cyanoacrylate is an acrylic resin that cures (forms its strongest bond) almost instantly. The only trigger it requires is the hydroxyl ions in water, which is convenient since virtually any object you might wish to glue will have at least trace amounts of water on its surface.

White glues, such as Elmer's, bond by solvent evaporation. The solvent in Elmer's all-purpose school glue is water. When the water evaporates, the polyvinyl acetate latex that has spread into a material's crevices forms a flexible bond. Super glue, on the other hand, undergoes a process called anionic polymerization. Cyanoacrylate molecules start linking up when they come into contact with water, and they whip around in chains to form a durable plastic mesh. The glue thickens and hardens until the thrashing molecular strands can no longer move.

Professor Vernon Kreible of Trinity College Hartford, USA, introduced super glue in the 1950's. Its fame started after one drop was used to lift a man from the floor on a TV program.

Shop sales of the domestic product began in 1977.

That's it for Part 1; we'll get into details in Part 2. Work area, cleaning, and glue creep.