



Technique...

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Making Chinese Paper Fuse



Figure 1: Rolling board, wet sponge, powder applicator and strip of tissue.



Figure 2: A 5/64" hole drilled at the bottom of a cigar case.



Figure 3: Pre-wetting the rolling board with a damp sponge.

Introduction:

It is likely that the first type of fuse you ever came across as a kid was that powder leakin', fire-skipin' paper wick sticking out of a firecracker. While this type of fuse is hardly ever used in class B fireworks due to its inconsistent burn rate and poor fire transfer characteristics, it does have the advantage of being quite flexible and small in diameter. It is ideal for use in small devices such as firecrackers, jumping jacks, bottle rockets and spinners like buzz-bombs, hummers and ground bloom flowers where fire needs to be passed through a very small diameter hole.

Materials:

The key to making this type of fuse is the type of tissue paper that must be used. While it isn't a true hand made gampi paper, it has similar characteristics in that it has good wet strength and does not tear easily. The paper is similar to that used to make coffee filters, although it is a thinner grade. A good place to find this kind of paper is hobby shops that sell balsa wood airplane models. The paper is sold in 2x3 sheets and is used to skin the finished planes. The paper is applied over the airplane frames while it is dry, then sprayed with water. Upon drying, the paper shrinks and forms a tight skin over the frame.

This shrinking characteristic also helps when making fuses, since it reduces the tendency for the dried fuse to unravel.

Figure 1 shows everything you will need to roll your own Chinese fuse. A wooden rolling board, a wet sponge and a special powder applicator made from a capped tube. Aluminum cigar cases make ideal powder applicators, since they have a rounded bottom and a screw on cap for loading in the fuse powder. The plastic test tubes sometimes used to serve shots in a bar also work good if you have a cork that will fit the end. Simply drill a small hole at the bottom as seen in Figure 2 and fill the tube half full of powder.

Procedure:

Begin by cutting strips of the gampi tissue that are about 3/4" to 1" wide. Make sure you cut the paper so that the grain runs the length of the strips. The length of the strips are not critical, but it is easiest to work with lengths that are about a foot long.

These fuses are rolled in a wet state, so it is necessary to roll them on an untreated wood surface that will absorb water to prevent pooling on the surface. Use a damp sponge to wet the surface of your rolling board before laying down a strip of tissue, as seen in Figure 3. Lay a strip onto the damp wood and sponge over it to make sure there are no dry spots.

Next take your powder applicator and tap a powder train down the middle of



Figure 4: Tapping a powder train with the powder applicator.



Figure 5: Hand position for rolling up the fuse.



Figure 6: Twisting the finished fuse in opposite directions with both hands.



Figure 7: Finished batch of 3/32" diameter fuse.

the strip for the full length, as seen in Figure 4. Tapping the tube against the board as you move it along should cause the powder knock out into a straight line. Ball milled black powder makes the best fuse, but it can cause clogging problems coming out of the small hole. For those of you who make and corn your own black powder, your leftover corning dust will make a very fast burning fuse that may work well as cross match, and also flow easily from the applicator.

Once you have laid a powder train with no gaps along the length of the paper, begin rolling it up at an angle starting at one end. Figure 5 shows the proper hand position for quickly rolling up the fuse. The left hand does the rolling, while the right hand runs along the length at the point shown in Figure 5. This can be done in one continuous motion if your strip is only about a foot long. After the fuse is completely rolled up, roll each end in opposite directions to tighten it up as seen in Figure 6. This paper has amazing wet strength and you need not worry about ripping it by twisting too hard.

One nice feature about this type of fuse is that it can be dried and ready to use quite rapidly. Using a heat lamp and some air circulation, you can make some fuse and have it ready to use 30 minutes later!

If your fuse burns slowly with a red glow like an incense stick, then your powder train wasn't thick enough. Using unmilled green mix will also create slow burning fuse with lots of dross. It is the general nature of this fuse to burn with rapid skips that render it useless for any kind of timing. This is definitely not something you want to use for fusing any kind of exploding fireworks or other large effects that you would be lighting by hand. When made with corning dust, the ideal application of this fuse may be for cross matching time fuse, since it takes fire easily, burns fast and can be easily twisted into small holes without damaging the fuse. 🔥